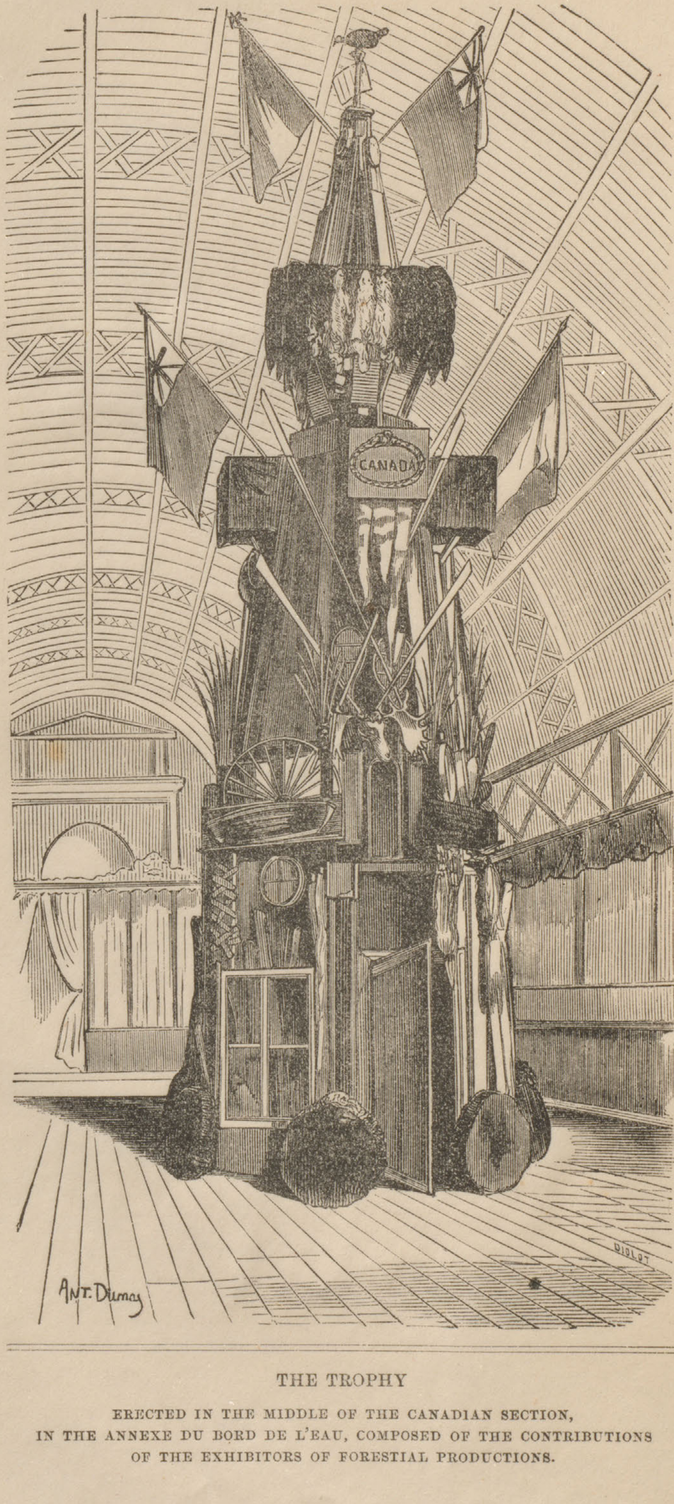




THE TROPHY

ERECTED IN THE MIDDLE OF THE CANADIAN SECTION,
IN THE ANNEXE DU BORD DE L'EAU, COMPOSED OF THE CONTRIBUTIONS
OF THE EXHIBITORS OF FORESTIAL PRODUCTIONS.

CANADA

AT THE

UNIVERSAL EXHIBITION

OF

1855.

Printed by order of the Legislative Assembly.

TORONTO:
PRINTED BY JOHN LOVELL, YONGE STREET.

1856.

COMMUNICATION OF THE REPORT

TO

HIS EXCELLENCY THE GOVERNOR GENERAL,

BY

J. C. TACHÉ,

SECRETARY TO THE EXECUTIVE COMMITTEE.

TO HIS EXCELLENCY

SIR EDMUND WALKER HEAD,

Governor General of the Provinces of British North America,

&c. &c. &c.

MAY IT PLEASE YOUR EXCELLENCY :

The Executive Committee who were charged with the management of the Canadian Exhibition, held in view of the Universal Exhibition in Paris, in 1855, deeming that their duties are now completed, have dissolved, having directed me as their Secretary to present the final Report of their proceedings.

I have the honor to transmit to you as forming part of my Report, the documents following, which contain the history of the Canadian Exhibition of 1855, namely :—The Minutes of the Proceedings of the first Commission, and the Minutes of the Executive Committee. 2nd. The Report of the Secretary to the Committee, including the decision upon the Essays submitted for competition. 3rd. A statement in detail under different heads of the expenses incurred by the Committee, being the report of the financial department of the Exhibition. 4th. My own report as Commissioner from Canada to Paris, with an appendix containing copies of three works published at Paris on the occasion of the Exhibition, 48 letters on the subject of the Exhibition, a complete Catalogue of the prizes awarded to the different countries, being a *résumé* of the official lists published in the *Moniteur*, and also a statement of the sums received and expended by myself. 5th. A report by Sir William Logan, with appendices, comprising a statement of the distribution of the articles after the close of the exhibition, and a list of the prizes awarded to Canada.

The Report made by William Gunn, Esquire, Treasurer of the Committee, the statement of the expenses incurred by Sir William Logan and myself acting as Commissioners, and the vouchers for all the monies paid out, have been submitted for the approval of the Auditor of the Public Accounts, and by him certified to be correct.

I have also forwarded to the Hon. the Secretary of the Province, a case

containing all the papers, correspondence, documents and memoranda belonging to the Executive Committee.

I have been authorized to conclude some few matters, on account of which the Committee did not think it necessary to continue their sittings, and thus delay the sending in of their report, after continuing their labors for a period of eighteen months; these comprise a few payments to be made of sums appropriated by the Committee, and of some expenses, the accounts for which have not as yet been sent in, amounting in the whole to about two hundred pounds currency, to be paid out of the balance of £644 2s. 4d. remaining in my hands.

I am further directed to state that the following articles, the property of the Province, are safely deposited as follows, viz., two fine specimens of black walnut and sycamore in the hands of the Hon. John Young, at Montreal; a gold watch, a set of artificial teeth, and a model in silver of a fire engine, in the hands of the Chairman of the Central Local Committee at Toronto.

Several cases are expected which contain the articles enumerated in detail in a list furnished by Sir William Logan, as having been forwarded to Canada. They consist in part of articles belonging to the Province and partly of articles, the property of individuals, for the restoration in good order of which, the Executive Committee were responsible; the freight of these articles is yet to be paid, out of the balance in hand.

A collection of foreign grain brought from the Paris Exhibition, the Committee have directed to be divided between the Boards of Agriculture for Upper and Lower Canada. This collection having been addressed to Montreal, the following gentlemen have been charged with its distribution, viz., Major Campbell, of St. Hilaire, Chairman of the Board of Agriculture for Lower Canada, the Reverend Messire Villeneuve, Mr. J. Logan, and Mr. Alfred Perry, of Montreal. The samples above referred to came for the most part from the United Kingdom, Tuscany, Austria, and Algeria. I have no doubt that experiments as to the comparative value of these different samples and their adaptation to the climate of Canada, will be conducted in a manner which will be of service to Agriculture throughout the land.

The whole respectfully submitted.

J. C. TACHÉ,
Secretary of the Canadian Executive Committee
for the Paris Exhibition.

Toronto, 21st April, 1856.

ABSTRACT

OF THE

PROCEEDINGS OF THE COMMITTEE.

PROCEEDINGS.

The communication in October, 1854, of the documents received from the Lords composing the Board of Trade of London, by the Honorable P. J. O. Chauveau, at that time Provincial Secretary, was the first signal which aroused the public to the necessity of having Canada represented at the Exhibition in Paris.

On communication of these documents to the Legislative Assembly, a Resolution was passed by that House, on motion of the Honorable Mr. Young, in accordance with which, an Address was presented to His Excellency the Governor General, praying that His Excellency would be pleased to take the necessary steps to secure a fitting representation of the products of the Country at the World's Exhibition of 1855.

Proceeding upon this Address, a proclamation was issued, constituting a Grand Provincial Committee, composed of gentlemen from all parts of the Country, to whom was confided the care of taking the necessary steps in the matter.

This Provincial Committee, composed of about two hundred persons, met for the first time on the 30th of October, with Sir Allan Napier MacNab as Chairman, and appointed a sub-Committee, to enquire into and report upon the matter, on the following Thursday, the 2nd November. This Committee was composed of Sir Cusack Roney, the Honorables F. Hincks, P. J. O. Chauveau, T. Mackay, J. Young, Captain Rhodes and Messrs. J. W. Gamble, J. C. Taché, J. Langton, E. W. Logan, de Rottermund, and C. J. Laberge.

On the day appointed, the sub-Committee above mentioned presented the following Report, which was adopted by the Provincial Committee.

PRELIMINARY REPORT OF THE COMMITTEE.

The Committee appointed at the meeting of the Provincial Committee held on the 31st ultimo, to suggest the course to be adopted to secure a

proper representation of Canadian products at the Paris Exhibition in 1855, have the honor to report:

That after much consideration and discussion they have arrived at the conclusions:

That it is absolutely necessary, in order to secure the end desired, that authority should be given to the Provincial Committee to purchase such articles as they deem essential to that object. They are of opinion that any attempt to induce voluntary effort by means of local Fairs would be fruitless. The experience of all who were actively engaged in promoting the Canadian Exhibition at the World's Fair in London in 1851, is, that the success of the present effort must depend entirely upon the energy and judgment to be displayed by an efficient Executive to be appointed by the Commissioners.

They would recommend that the Provincial Committee should delegate their powers to an Executive Committee, to be composed of twenty-one members, fifteen of whom should be in a position to give their attendance at Quebec; two should be resident at or near Montreal, the remainder to be gentlemen specially connected with the industrial resources of Upper Canada.

The Executive Committee should appoint their own Chairman and Secretary; such Chairman and Secretary to be the Officers of the Provincial Committee.

They recommend the immediate selection of such Executive Committee, and with a view to avoid any difficulties, they have ventured to suggest the names of twenty-one gentlemen, who would, in their opinion, be efficient members of it, to wit:

The Honorable T. McKay, the Honorable N. F. Belleau, the Honorable F. Hincks, the Honorable J. Young, Mr. Gamble, M.P.P., Mr. Langton, M.P.P., Mr. Cartier, M.P.P., Mr. Taché, M.P.P., Mr. Stevenson, M.P.P., Mr. Brown, M.P.P., Mr., Rhodes, M.P.P., Mr. A. A. Dorion, M.P.P., Sir Cusack Roney, Mr. Street, Mr. E. W. Thompson, Mr. Holwell, Mr. Archambault, of L'Assomption, Mr. Matthie, Mr. Légaré, artist, Mr. L. Denison, and Mr. Leeming.

They further recommend that in communicating the appointment of each member, enquiry should be made from him, whether he is prepared to give his active services to the Committee, and in case he declines doing so, or, after accepting, if he neglects attending three successive meetings of the Committee without furnishing a satisfactory excuse, then that his seat be considered vacant and the Committee at liberty to fill up the vacancy.

They recommend that the quorum of the Executive Committee shall be five.

The Committee do not deem it necessary to go into a detailed

statement of their views, as to the duties devolving upon the Executive Committee.

They would however probably in the first instance, determine as to the description and classification of the articles which it would be expedient to offer for exhibition: sub-Committees might take charge of the various classes, and assisted by the Local Committees they will render less difficult the selection of the articles and the means of obtaining them.

The Committee consider that they should not omit to recommend to the attention of the Executive Committee the importance of securing the publication of a work upon Canada, its productions and resources, accompanied by a map, shewing the geographical features of the Country, and the different routes followed by European emigration, cost of passage, &c.

The Committee suggest that competition should be invited for such work by the offer of one or more adequate prizes.

It has not fallen within the province of this Committee to enter into the consideration of the amount which will be required to effect the objects contemplated.

They entertain no doubt however, that the sum required will be obtained, to carry out efficiently a project which so seriously concerns the advantage and the best interests of the Province.

The whole nevertheless humbly submitted,

T. McKAY,
Chairman of the sub-Committee.

By the adoption of this Report, the Executive Committee of the Canadian Exhibition in Paris, composed of the gentlemen whose names it contains, became constituted. At a later period the Honorable Mr. Chauveau, of Quebec, was added to the Executive Committee instead of Mr. Holwell, and Mr. Louis Ricard, instead of Mr. Archambault, the two gentlemen so replaced being absent.

On the very day of its formation, the Executive Committee held a meeting and elected the Honorable Francis Hincks, Chairman, Mr. J. C. Taché, Secretary, and W. Gunn, Esquire, Treasurer. About the middle of the following summer, 1855, Mr. Hincks having been appointed Governor General of the Windward Islands, Captain Rhodes, of Quebec, succeeded him as Chairman of the Committee.

On the 4th November, the Executive Committee published the following regulation, to serve as a guide for the line of conduct to be followed:

THE EXECUTIVE COMMITTEE

Appointed to ensure a fitting representation of the industry and resources of Canada at the World's Exhibition to be held in Paris in the year 1855, have the honor to report:

That the success of the present effort to procure a creditable exhibition of Canadian industry at the Paris Exhibition must depend, in a great degree, on the cordial and zealous co-operation of the public at large through the several Local Committees. It has been deemed absolutely necessary, in order to ensure unity of action as well as efficiency, that there should be a Central Executive Committee, the members of which, or at least a large majority of them, should be able to meet together. The Executive Committee will, however, be most anxious at all times to receive the counsel and advice of the Local Committees. It is recommended that such Local Committees be organised in the chief towns of each County in Lower and Upper Canada, and that they should consist of all members of either Branch of the Legislature, all Members of the Commission lately appointed by His Excellency the Governor General, all Wardens, Mayors and Reeves, the Professors of incorporated Colleges, the Presidents and Secretaries of Agricultural Societies, and Presidents of Mechanics' Institutes or other scientific bodies. The Committees should have power to add to their number, and it is hoped that in each locality, some one or more of the classes indicated will at once organize a Local Committee, the Secretary of which should put himself in communication with the Secretary of the Executive Committee, and give him all the information in his power as to the employment of the people in his locality. Where any special manufacture is carried on, it should be noticed, and accompanied with any propositions which may be made for its illustration. For reasons which will be explained elsewhere, it is proposed that at Montreal and Toronto there should be Central Local Committees, and as the duties of these Committees will be much more laborious and responsible, they should be organised in a different manner. It is proposed that until further arrangements can be made, the resident members of the Executive Committee should correspond with the Secretary, and that they should submit, with as little delay as possible, the names of such gentlemen as may be eligible for serving on the Central Committee, bearing in mind that the most important qualifications, are the ability to be useful, active and energetic co-operation, and disconnection with parties likely to be exhibitors. Having provided for the organization of the Committees, the next subject for consideration is the mode to be

adopted to secure a creditable representation of our industry at Paris. The Executive Committee would earnestly press on the public the importance of systematic, and, when practicable, scientific arrangements. They beg to call attention to the following extracts from the Juror's Reports on the London Exhibition. In the report of the Jurors of Class 1, on mineral products, by Mr. Dufresnoy, Member of the Institute of France, Inspector General of Mines, &c., it is said:

"Of all the British Colonies, Canada is that whose exhibition is the most interesting and complete, and one may even say that it is superior, so far as the mineral kingdom is concerned, to all countries that have forwarded their products to the Exhibition. This comes from the fact that the collection has been made in a systematic manner, and the result is, that the study of it furnishes the means of appreciating at once the geological structure and the mineral resources of Canada. It is to Mr. Logan, one of the Members of the Jury, who fills the office of Geological Surveyor of Canada, that we are indebted for this collection, and its value arises from the fact that he has selected on the spot most of the specimens that have been sent to the Exhibition, and arranged them since their arrival in London."

Again, in the report of the Jurors of Class 3, "Substances used as food," by Dr. Hooker, it is said:

"Messrs. Lawson's collection exhibits the ear and grain of every variety of cereal and also models of all the roots which it has been found practicable to cultivate in Scotland; the specimens are beautiful, and the arrangements scientific and excellent. No consideration of cost or trouble has been allowed to interfere with providing all that is necessary to render this collection a true and complete illustration of the vegetable products of Scotland. A Council Medal has been awarded to Messrs. Lawson for their admirably displayed, very complete, instructive and scientifically arranged collection of the alimentary products of Scotland."

The Jurors of Class 4, in their report on animal and vegetable substances chiefly used in manufactures, as implements, or for ornaments, by Professor Owen, says:

"Among the numerous samples of raw produce contributed by different countries, there are several collections of especial value which derive additional merit from their completeness and from the fact that they illustrate the trade and manufactures of an entire country. The importance of such collections, not only in a commercial but in a statistical and scientific point of view, is very great, and the Jury therefore, being desirous of expressing their approbation of the practical benefits to be derived from the formation and study of such collections, and the advantages which the commercial and manufacturing community may obtain by their means, have determined to recommend the award of the Council Medal to the Governments of those countries, the natural products of which were so instructively and completely exhibited."

The three classes above adverted to, comprise the great staple products of Canada, her minerals, agricultural products, and timber, and the Committee hope that efforts will be made to ensure a satisfactory representation of them. They would likewise suggest that the respective manufactures should be illustrated, by exhibiting the materials in their various stages, up to the highest point of perfection. It is most important in the opinion of the Committee that copies of the Jurors' Report of the London Exhibition should be placed within reach of as

many as possible, and all persons desirous of exhibiting, are strongly recommended to read such parts of that interesting work as may be specially important to them. Those who have copies of this work are requested to place them at the temporary disposal of the Committee in order that they may be distributed throughout the Country.

To assist the public as much as possible in the meantime, the Committee propose appending to this report a concise table shewing the classification adopted at the London Exhibition, and the awards of the Council Medals, also the names of Canadians who obtained Medals or "Honorable Mention." A more detailed list may be given hereafter, but the Committee are anxious that as little delay as possible should take place in developing their scheme to the public.

The Committee being of opinion that voluntary effort is not to be relied on, have obtained the sanction of the Commissioners to the principle of paying for all articles sent to the Paris Exhibition, but at the same time they propose that the contributors should receive all prizes or honors which may be awarded to the articles sent by them. The great difficulty in carrying out the plan of purchasing, is to avoid partiality, and the Committee have anxiously considered this point, and have determined to recommend:

1. That all who have received prizes or honorable mention at the London Exhibition in 1851, or the New York Exhibition of 1853, and all who have received first prizes at either of the Provincial Exhibitions of Upper and Lower Canada in 1853 and 1854, should be invited to send propositions to the Local Committees stating whether they will send specimens of their products and manufactures for exhibition to Montreal or Toronto, on or before 1st February next, payment to be made for such articles at the fair wholesale market value, to be decided in case of dispute by the Judges at the Local Exhibition.

2. The Local Committee may further recommend for consideration a proposition from any party who has received a first prize at any Local Exhibition, which shall be referred to the sub-Committee of the Executive Committee charged with that branch of industry.

3. In case of failure to obtain contributions from the above classes or under special circumstances, the sub-Committee may take such steps as they may think best to ensure a proper representation of their particular branch. By these means it is hoped that public confidence will be inspired in the impartiality of the Committee. But it is proposed to go further. The whole public are invited to compete at the Local Exhibitions, at Montreal and Toronto, and any successful competitor will have his contribution purchased on the same terms as those furnished by the classes already described. The Executive Committee do not bind them-

selves to send to the Paris Exhibition any of the articles which they engage to purchase. They must be guided by circumstances, such as the extent of the contribution, the quantity of space allotted, &c., &c. The articles not sent will of course be resold on account of the Commission. The propositions made by the parties entitled to furnish articles under the above regulations, must be as specific as possible, and must be forwarded at once to the Secretary, so that the proper sub-Committee may dispose of them. It will be advisable to prevent as much as possible, similar articles being made by different manufacturers and mechanics. It is hoped that no delay will now take place, and that the Local Committees will be active in obtaining and promptly procuring the propositions of intended contributors. It is recommended that all the contributions be sent to Montreal or Toronto, where they will be delivered free of expense to the Central Committee at each place, and exhibited to the public at a small admission price. Jurors will be appointed to aid the Committee in determining on the articles to be sent to Paris, but no prizes will be awarded. Such is the scheme which the Executive Committee are of opinion will, if zealously supported by the Local Committees and the public, ensure for Canada an honorable position at the great Paris Exhibition.

F. HINCKS,
Chairman.

J. C. TACHÉ,
Secretary.

These regulations were numerously distributed to the public, together with a classification of articles suitable for the Exhibition, and with the following list of the sub-Committees chosen from among the Executive Committee, and specially charged with the duty of endeavoring to obtain the articles belonging to their respective classes, accompanied also by a notice to the Local Committees.

Sub-Committee 1.—Mr. Langton, M. P. P., Chairman.—Messrs. Rhodes, M. P. P., and Dorion, M. P. P.

Sub-Committee 2.—Mr. Rhodes, M. P. P., Chairman.—Messrs. Gamble, M. P. P., E. W. Thompson, R. L. Denison and Archambault.

Sub-Committee 3.—Hon. Mr. Young, Chairman.—Hon. Mr. McKay, Hon. Mr. Belleau, Mr. Langton, and Mr. Leeming.

Sub-Committee 4.—Mr. Dorion, M. P. P., Chairman.—Hon. Mr. McKay, Sir Cusack Roney, Mr. Stevenson, M. P. P., and Mr. Holwell.

Sub-Committee 5.—Mr. Gamble, M.P.P., Chairman.—Mr. Cartier, M.P.P. Mr. Brown, M. P. P., Mr. Street, and Mr. Matthie.

Sub-Committee 6.—Mr. Brown, M.P.P., Chairman.—Mr. Gamble, M.P.P. Mr. Légaré, Mr. Street and Mr. Leeming.

Sub-Committee 7.—Mr. Holwell, Chairman.—Sir Cusack Roney, Hon. Mr. Young, Mr. Stevenson, M.P.P., and Mr. Archambault.

Sub-Committee 8.—Hon. Mr. Belleau, Chairman.—Sir Cusack Roney. Mr. Cartier, Hon. Mr. Young, and Mr. Légaré.

"The Chairman and Secretary are *ex officio* members of all the Sub-"Committees.

"The Local Committees are requested to report their formation as early "as possible to the Secretary, and to offer such suggestions as they may think "useful. No expenses are to be incurred without the written authority of "the Chairman and Secretary of the Executive Committee. All proposals "should be accompanied by an estimate of the probable cost. It must be "borne in mind that the great object is to illustrate in the most systematic "manner the industrial resources of the Country. It has been found impos-"sible to give the names of any of the parties entitled by the regulations to "contribute, except those who obtained rewards at the London and New "York Exhibitions. Circulars will be sent to the others as soon as possible."

This appeal of the Executive Committee was responded to by the public, and Local Committees were formed in different parts of Upper and Lower Canada.

The Central Committees of Toronto and Montreal were constituted as follows:

Montreal Committee: Messrs. H. Bulmer, Chairman, Louis Ricard and W. Evans, Secretaries, W. E. Logan, the Honorable Mr. De Bleury, M. l'Abbé Villeneuve, Messrs. H. Lyman, V. Hudon, N. Valois, J. P. Litchfield, W. Bartley, T. Dods, A. Perry and A. Cantin.

Toronto Committee: Messrs. E. W. Thompson, Chairman, G. W. Allan, Secretary, Buckland, Treasurer, Sheriff Jarvis, W. Armstrong, R. L. Denison, T. Wheeler, J. Wheeler, W. Edwards, A. Ward, E. Musson, J. Flemming, T. D. Harris, S. Thompson, J. Harrington, J. Pell, F. Cayley, W. Gamble, Professors Wilson, Croft, Hind, Cherriman and Chapman, and F. Cumberland.

PROCEEDINGS OF THE COMMITTEES.

One of the first acts of the Executive Committee was to open a competition with the view of obtaining a short and concise work on Canada, having for its object to make the foreigner acquainted with the Country. The public were informed of the object of the Committee by the following notice:

"The Executive Committee for the Paris Exhibition have deemed it im-

portant to disseminate through Europe, fuller information than is generally to be found in published works, upon the industrial condition and capabilities of the Province, and have therefore decided upon offering for public competition, three prizes of £160, £60 and £40 for the three best essays on Canada and its resources, its Geological Structure, Geographical features, Natural Products, Manufactures, Commerce, Social, Educational and Political Institutions, and general statistics.

"In the treatment of the subject regard is to be had to the facilities for transport both of goods and passengers between the mouth of the St. Lawrence and the regions of the West, and to a comparison of these facilities, as to cost and distance, with those offered by other routes.

"Persons desirous of competing for the above prizes must send in their essays either in the French or English languages to the undersigned on or before the 15th February next. Each essay to have a motto, a duplicate of which must be inscribed on a sealed envelope, containing the name of the author, and must accompany the essay.

"The copyright of Prize Essays will be considered the property of the Committee.

"Practical utility and comprehensiveness, combined with conciseness, will be among the chief considerations upon which the awards of the Judges will be based.

"J. C. TACHÉ,
" Secretary of the Executive Committee.

"Quebec, 13th November, 1854."

Nineteen writers responded to this appeal; the following is the Report of the Judges appointed by the Committee, and charged to decide as to the respective merits of the essays, and also the final decision of His Excellency Sir Edmund Head.

REPORT OF THE JUDGES.

The Committee to whom the Executive Committee on the Paris Exhibition referred the selection of the Prize Essays on Canada, submit the following Report:

The Committee have received from the Secretary nineteen Essays, eighteen of which have been carefully considered, but the nineteenth is so illegibly written that it has been quite impossible to decipher it, without an amount of time and pains, which the several members of the Committee have been unable to give.

Of the eighteen Essays, the Committee have selected three with the following mottoes: "*Labor omnia vincit.*"—"*J'ai vu ce que je raconte.*"—

and "*Virtute et labore, dum spiro spero*"—as those which in their judgment are entitled to prizes, but they have been unable to decide upon the order in which they shall stand, as they are equally divided in opinion upon their classification, and they therefore report them to the Executive Committee, simply as prize worthy, considering it better not to make particular reference to their notes, as to the position which each Essay should occupy on the prize list.

In addition to these three Essays, the Committee recommend those with the following mottoes: "*Suam quisque pellam portat*,"—"*Reddit ubi Cererem tellus inarata quotannis*,"—and "*It is with nations as with nature, she knows no pause in progress or development, and attaches her curse to all inaction*"—to the favorable consideration of the Executive Committee, either as deserving to be published at the public expense, or as entitling their authors to some gratuity to assist in their publication, as the Executive Committee shall deem best, with the consent and at the option of the authors themselves.

The Committee have been most favorably impressed by several of the remaining Essays, and while they have not considered it necessary to make any further classification, they cannot avoid congratulating the Country, that the opportunity has been afforded to so many able writers, of displaying the capabilities of this noble Province.

In conclusion, the Committee regret that their various avocations, since they were named as Judges, have kept them so constantly engaged, that they have not been able to give so close an attention to all these Essays as they should have desired, but they have given them the most careful perusal the time allotted would permit, and although there is not one, even of those reported, without several errors of detail or description, they have risen from their perusal with much gratification, arising as well from the great amount of correct statistical information that has been brought together, as from the agreeable and readable shape in which much of it has been prepared for the public eye.

(Signed,) J. HILLYARD CAMERON,
D. B. STEVENSON,
ROBERT CHRISTIE,
E. PARENT,
L. H. HOLTON,
A. N. MORIN.

Quebec, 23rd April, 1855.

The opinions of the Judges whose decision we have just given, being equally divided as to the merits of the three works, selected as superior to the others; the Committee prayed His Excellency the Governor General, Sir Edmund Head, to examine the three manuscripts, and to give as a decision which should be final, his opinion as to the rank which each essay should occupy, with respect to the two others.

The following is the decision of His Excellency:—

The Governor General having carefully perused and considered the Essays placed in his hands by the Judges, assigns the first place to that, bearing the motto

"Labor omnia vincit."

The other two, though very different in character, he has great difficulty in placing. The French Essay (J'ai vu ce que je raconte,) is more readable, and in some respects preferable to the English one,

"Virtute et labore dum spiro, spero."

On the other hand, the English is more systematic and concise, and for purposes of reference conveys more information; and if it is impossible to treat them as equal, which His Excellency would willingly do, it seems proper to assign the second prize to the latter of the two, and the third to the French.

(Signed,) EDMUND HEAD.

1st May, 1855.

The Executive Committee have, therefore, to announce that the First Prize is awarded to John Sheridan Hogan, Esquire, author of the Essay bearing the motto "*Labor omnia vincit*" the Second Prize to Alexander Morris, Esquire, of Montreal, with the motto, "*Virtute et labore, dum spiro, spero*," and the Third Prize to J. C. Taché, Esquire, M. P. P., author of the Essay, with the motto "*J'ai vu ce que je raconte.*"

In accordance with the recommendation of the Judges, the Executive Committee have awarded three extra prizes of £25 each, to the authors of the Essays bearing the mottoes, "*Suam quisque pellam portat*"—"*Reddit ubi Cererem tellus inarata quotannis*"—and "*It is with nations as with nature, she knows no pause in progress and development, and attaches her curse to all inaction.*" The authors of these Essays are Hector L. Langevin, Esquire, of the City of Quebec; E. Billings, Esquire, of the City of Ottawa, and William Hutton, Esquire, Secretary Board Statistics, Quebec. The authors of the other Essays may obtain them on application to the Assistant Secretary of the Committee, I. R. Eckart, Esquire, Quebec.

FRANCIS HINCKS,
Chairman Executive Committee.

The Committee ordered that 5,000 copies of the Essays by Messrs. Hogan and Taché and 1,000 copies of that by Mr. Morris should be printed. The Essay by Mr. Hogan was also translated into French and two maps were annexed to each of the copies, a map of the country was also appended to the Essay by Mr. Taché.

Transmission of Articles.

In order to facilitate as far as possible, a comparison between the London Exhibition in 1851, and that of Paris in 1855, in so far as Canada is concerned, the list of articles forwarded in 1851, the only document remaining, which relates to the Canadian Exhibition in London, is given below.

LIST OF ARTICLES forwarded from Montreal for the Grand Exhibition in London, and consigned to Henry Houghton, Esquire, 44, Friday Street, London, Agent appointed by the Commissioners.

55 Packages of Minerals, Ores, and Earths, consisting of blocks of Marble, blocks of Serpentine, specimens of Peat, Earth, Shell Marl, Ores of Iron, Zinc, Lead, Copper, Nickel, Silver, Uranium, Cobalt, Manganese, Iron Pyrites, Molybdenite, Magnesian Limestone, Magnesite, White Quartzose, Sandstone, Schistose Stone, Soapstone, Pipe Clay, Whetstone, Plumbago, Agates, Jasper, Waved Chert, Lithographic Stone, Iron Ochre and Stone Paints, Canadian Tripoli, &c.

The above are contributed principally by W. E. Logan, Esquire, Dr. James Wilson of Perth, the Montreal and the Prince's Mining Companies, Sheriff Dickson, Sheriff Boston and others; the whole accompanied by a valuable collection of Canadian Fossils, and specimens of Gold from the Chaudière, contributed by Dr. Douglass of Quebec, will be placed under the direction of Mr. Logan, who has already proceeded to England for the purpose.

ALSO,

1 bale Hops, B. Smith .... Stanstead.
1 bale Hops, J. Penner .... Lachine.
3 barrels Spring Wheat, W. F. Weese .... Ameliasburgh.
3 barrels Spring Wheat, P. Desjardins .... Terrebonne.
3 brls. Spring Wheat, D. Laurent .... Varennes.
3 barrels Spring Wheat, John Drummond .... Petite Nation.
3 barrels Spring Wheat, John Allan .... Long Point.
3 barrels Fall Wheat, J. Graham .... Sydney.
3 brls. Fall Wheat, Agricultural Association .... Canada West.
3 brls. Fall Wheat, Agricultural Association .... Canada West.
1 brl. Fall Wheat, James Logan .... Montreal.
1 brl. Peas, Wm. Boa .... St. Laurent.
1 brl. Peas, D. Limoges .... Terrebonne
1 brl. Peas, D. Jones .... Sydney.

1 brl. Barley, Wm. Boa.... St. Laurent.

1 barrel Oats, R. N. Watts, M. P. P.... Grantham.

1 brl. Oats, A. Muir.... Hinchinbrooke.

1 brl. Beans, C. Fournier.... Longueuil.

1 brl. Beans, Madame Lemere.... Montreal.

1 brl. Beans, (yellow) Jos. Brien.... St. Martin.

1 brl. Beans, horse) Jas. Fisher.... Rivière des Prairies.

½ barrel Buckwheat, E. Treuholm.... Kingsey.

½ barrel Buckwheat, J. & E. Caniff.... Thurlow.

2 brls. Oatmeal, R. Squairs.... Bowmanville.

2 brls. Flour, J. Simpson & Co.... do

1 brl. Flour, Thomas Linghon.... Thurlow.

1 brl. Flour, P. V. Failey.... do

1 brl. Indian Meal, C. Trenholm.... Kingsey.

½ brl. Indian Meal, A. Rèche.... St. Laurent.

1 brl. Flax Seed, B. Desjardins.... St. Rose.

1 barrel Siberian Oil Seed, James Fisher.... Rivière des Prairies.

1 brl. Buckwheat, B. Desjardins.... St. Rose.

½ barrel Timothy Seed, S. Ubadeau.... St. Anne.

½ barrel Timothy Seed, Thomas McGinn.... Montreal.

1 brl Red Clover Seed, J. Jeffreys.... Rawdon.

1 brl. Corn in the Ear, J. Logan.... Montreal.

1 brl. do do Alex. Shaw.... Toronto.

1 barrel Vinegar, Gillespie, Moffatt & Co.... Montreal.

2 boxes Starch, J. Prendergast.... do

2 boxes do Bronson and Shipton.... St. Hilaire.

1 jar Preserved Potatoes, Bronson & Shipton.... do

10 lbs. double refined Maple Sugar, Commissioners.

6 lbs. double refined Maple Sugar, John Bales.... York.

12 lbs. Maple Sugar, Joel Parker.... Hatley, Eastern Townships.

12 lbs. Maple Sugar, A. Fisher.... Ascot, do do

½ dozen Syrup, Maiden Hair, J. Fletcher.... Montreal.

½ dozen Raspberry Vinegar, J. Fletcher.... do

1 case Candy, J. Fletcher.... do

Hemp Seed, F. Grier.... do

6 Corn Brooms, Nelson and Butters.... do

6 Corn Whisks, Nelson and Butters.... do

6 Corn Brooms, O. N. Brainerd.... Hamilton.

6 Corn Whisks, do .... do

6 Corn Dusters, do .... do

1 roll Tobacco, J. Levey.... Montreal.

3 jars Snuff, 24 lbs., do .... do

26 lbs. Flax, M. Bastien.... St. Rose.

2 Cheeses, 174 lbs., George Cross.... Dunham, C. E.

2 Cheeses, 134 lbs., S. Baker.... do do

1 Cheese, 42 lbs., P. Spencer.... St. Armand, C. E.

1 Cheese, 65 lbs., Provincial Agricultural Association.... Canada West.

1 brl. Pork, Reinhart.... Montreal.

2 brls. Pork, E. Idler.... do

63 lbs. Lard, E. Idler....................................Montreal.
1 brl. Beef, R. Nicholson.................................. do
16 lbs. Honey, Henry Lyman................................ do
20 lbs. Bees Wax, Joseph Pinsonnault....................St. Martin.
10 lbs. Glue, A. McFarlane................................Côte des Neiges.
1 doz. bottled Cider, J. Penner............................Lachine.
1 doz. Mineral Waters, A. Mann............................Montreal.
Smoked Hams, G. Reinhart................................ do
Prepared Hams, E. Idler.................................. do
Dried Beef, Smoked, E. Idler.............................. do
1 brl. Fine Ship Biscuit, A. Fitts.......................... do
1 case Bread Crackers, A. Fitts............................ do
1 case Biscuits, &c., John Robb............................ do
6 Black Walnut Planks, J. Davies..........................Simcoe.
3 do do do Commissioners.
6 Birch, 2 Red Elm, 4 Butternut, 20 Pine, 3 Bird's Eye Maple, 4 Oak, 2 Iron Wood, 3 Hornbeam, 2 Hard Maple, 3 Soft Maple, 3 Ash, 1 Tamarack, 7 Spruce, 3 Cherry, 3 Knees for Shipbuilding, Curled Maple, Bird's Eye Maple, Black Walnut Veneers.
6 Embroidered Chairs, W. Drum............................Quebec.
Elm Knot Work Table, J. R. Cameron......................Montreal.
Sofa, Reed and Meakins.................................. do
2 Chairs, Reed and Meakins................................ do
1 Chiffonier do do .... do
Dried Smoked Sausages and Bolognas, E Idler.............. do
Table, Imitation Mahogany, Ramsay and McArthur.......... do
do do Oak, do .... do
do do Marble, do .... do
Walnut Bedstead, James Morice............................ do
2 Walnut Chairs, S. Redhead.............................. do
1 Office do do .... do
1 Drawing-room Chair, William Allen........................ do
1 Ornamental Stool......................................Quebec.
1 Stone Centre Table, R. Hammond........................Montreal.
6 Rocking Chairs, William Allen............................ do
Piccolo Piano Forte, J. W. Herbert........................ do
Spring Back Sofa, J. and W. Hilton........................ do
Walnut Centre Table, do .... do
Walnut Pier Table, do .... do
Spring Back Sewing Chair do .... do
6 Drawing-room Chairs, do .... do
Téte-à-Téte, do .... do
Chiffonier, Reed and Meakins, ... do
Black Walnut Centre Table, Reed and Meakins.............. do
Sofa, do .... do
Rocking Chair, do .... do
6 Black Walnut Chairs, elaborately carved, needle work coverings—style of 14th century—intended as a present to Her Majesty the Queen, from the Ladies of Montreal.
20 lbs. Cut Nails, Holland and Dunn........................Montreal.
22 yards Wire Cloth, W. H. Rice............................ do

6 Bench Planes, A. Wallace.......................................Montreal.
6 Moulding do do .... do
Polished Balance Scales, complete, C. P. Ladd.......... do
8 Chopping Axes, do .... do
10 do do do .... do
Cooking Stove, with Copper Furniture, com., G. H. Cheney. Toronto.
Parlour Stove, G. H. Cheney.................................. do
Iron Plate, do .... do
2 cases containing varieties Ship Blocks, made by J. Clarke. Montreal, Commissioners.
3 Chopping Axes, Samuel Shaw.............................Toronto.
1 Broad do do .... do
9 Cooper's Tools, do .... do
9 Framing Chisels, do .... do
1 Hunting Axe, do .... do
2 Pieces Oil Cloth, M. Laflamme...........................Montreal.
3 pairs Shoe Lasts, Wardill .... do
Flexible Branch Pipe, William Ferguson..................... do
3 Chopping Axes, G. Leavitt..................................Dundas.
1 Broad do do .... do
1 Chopping Axe, Scott and Glassford.......................Montreal.
Copying Press, James Perry.................................... do
Leather Trunk, M. Dean... do
1 do do J. Irvin.. do
6 Whips, Josh. Threckeld ....Toronto.
6 Brushes, (fancy) Thos. Wheeler.............................. do
5 Fancy Pails, Jas. Baily...Sherbrooke.
1 do Pail, 1500 joints, R. S. Dodd..............................Ayr.
1 case Pipes, assorted, Henderson...............................Montreal.
Specimen Cordage, T. Dixon...Toronto.
Box Twine, A. Spooner..Montreal.
2 Coils Rope, Henderson...Quebec.
1 Counterpane, Simon Bean...Hatley, C. E.
2 Table Cloths, do .... do
1 Counterpane, Thos. Dixon...Toronto.
2 Horse Blankets, Wm. Gamble...Milton Mills, C. W.
1 piece Carpeting do .... do do
1 piece do Barber...Esquesing, C. W.
1 piece Linen, M. Fortier....................................St. David.
1 piece Grey Cloth, Willet & Co..........................Chambly.
1 piece Grey Cloth, Hon. Thomas McKay................New Edinboro' near Bytown
1 piece Satinette, do .... do do
1 piece do dark, do .... do do
1 piece do brown, do .... do do
6 Pair Blankets.
Portable Grist Mill, C. P. Ladd..................................Montreal.
Light Plough, A. Fleck.. do
2 Light Ploughs, Skinner & McCullock...........................Brockville, C. W.
6 Hay Forks, 3 Prongs, Skinner & McCullock.................. do
6 do 2 do do .... do

5 Manure Forks, Skinner & McCullock ....Brockville, C. W.
6 Scythe Snaiths, do .... do
6 do do S. Hurlburt..Prescott.
1 Root Cutter, M. Moody ....Terrebonne.
1 Grain Cradle...Glassford.
1 Churn, W. F. Weese..Ameliasburgh.
Moose Skin, P. Teongathaseau......................................Quebec.
1 pair Snow-Shoes, M. Ondaganhaut................................ do
1 pair Mocassins, do .... do
1 Moose Hide, Indian Coat, Cap, Gun Case, Leggings, Knife Case, &c., P. Touansengan,.................. do
1 Belt and pair Bracelets, R. U. Bell..................................St. Catherines.
4 Snow Shovels.
Bark Canoe and Equipments, Commissioners.
1 pair Moose Horns, J. Thomson..Three Rivers.
8 pairs Embroidered Slippers, Indian work, John Henderson Montreal.
6 Cigar Cases, Indian work, do do
2 Purses, 1 Fan, do do do
Bark Box and Fan, bark work, H. Rocheleau......................Three Rivers.
Bark Box and Tray, bark work, Major Campbell.................St. Hilaire.
Embroidered Table Cloth, John Henderson.........................Montreal.
Indian Saddle, P. W. Bell.. do
Complete Indian Costume, Mrs. J. H McVey......................South Potton, C. E.
Safety Rein, Mr. Holwell...Quebec.
Hunting Saddle, M. Govern Sullivan..................................Hamilton.
Double Carriage Harness, Robert Morris.............................Montreal.
Set Single Harness, Stewart ....Toronto.
Single Sleigh, complete, McLean & Wright...........................Montreal.
Double do do Michael O'Meara......................... do
Single do do J. J. Saurin...Quebec.
Single Fancy Sleigh, complete, J. J. Saurin.......................... do
Light Carriage, do do .... do
5 Calf Skins, H. Murray...Montreal.
2 Sides Upper Leather, H. Murray....................................... do
2 Sides Sole Leather, McLean and Cumming .... do
3 Samples Leather, Mr. Alloa.. do
Case Tanning Materials, Mr. Alloa....................................... do
Church Bell, Canada Copper and Casting, G. E. Molson.... do
Specimen of Lithotype, G. Mathews...................................... do
Specimen of Turning, Parker, Brothers..............................Toronto.
Medal and Die, Thomas Wheeler... do
2 bars Axe Iron, St Maurice Forges, Hon. James Ferrier...Montreal.
1 bar Axe Iron, Square, St. Maurice Forges, Hon. Jas. Ferrier. do
2 do Cold Folded do do do do do
2 do Twisted do do do do do
1 do Horse Shoe do do do do do
1 do Ploughshare do do do do do
Model Locomotive Engine, P. Rodier..................................St. Hyacinthe.
Lithographic Drawing, T. Fleming......................................Toronto.

Architectural Drawings, J. Duncan.......................................Montreal.
2 Model Bridges, R. Lewis.......................................Melbourne.
City of Montreal Arms, engraved on leather, Madame de Montenach, Montreal.
Shot Bag and other hunting articles, J. Alloa.......................Montreal.
Model Cannon, do .... do
Specimens of Dentistry, C. M. Dickinson....................... do
Do do Charles Rahn.. ....Toronto.
Rifle, T. J. Boyd.......................................Montreal.
Rifle, T. Ashfield.......................................Toronto.
Cornopean, MacPherson.......................................Montreal.
Bologna Sausages, G. Reinhart....................................... do
Theodolite Stand, T. Ashfield.......................................Toronto.
Do do J. B. Simpson.......................................
Clarionette, MacPherson.......................................Montreal.
A Violin and Case, Patrick Higgins....................... do
Complete Suit Etoffe du Pays, Messrs. Adams....................... do
Silk Sash, Commissioners,....................... do
Steam Engine, Gong, Brass Cocks, &c., C. Garth....................... do
Case Garden Seeds, assorted, George Shepherd....................... do
Two Cases Fancy Soaps, John Mathewson and Son.......... do
Case Straw Plait, assorted, manufactured at Quebec, Commrs.
Military Helmet, Sir Jas. Alexander, A. D. C.......................Montreal.
1 case Ornamental Letter Press Printing, J. Starke & Co.... do
Specimen Printing in Colors from Canadian Ink, J. Baylis. do
Case Complete Type, C. T. Palsgrave....................... do
Specimens of Goldsmiths' Work, Henry Laggatt, ... do
Do Silver do G. Savage....................... do
Do Wild Cotton, J. P. Ashton, St. Laurent..........St. Laurent.
Fire Engine, George Perry.......................................Montreal.
Cod Liver Oil, Porpoise Oil, Whale Oil, Porpoise Leather, Whale Leather, Specimens of Printing Type, roll of Maple Veneer, Cork Sole Clogs, Hunting Boots, Mocassin and Shoes, Stump Extractor, sent from Quebec. R. Symes, Esquire.

JOHN LEEMING, Secretary.

Montreal, 1st March, 1851.

CATALOGUE

Of articles sent from Canada to the Pari- Exhibition in 1855.

Name of Exhibitor.	Residence of Exhibitor.	Articles exhibited.	Market Price of Articles.*		Special mark of the package containing the article.		Remarks.
			Currency.				
1 Miss Martel	Quebec	2 hay hats	30s.		Quebec,	No. 1	* The prices here given are those of the current year; they naturally vary more in Canada than in Europe. The prices of raw materials for manufactured articles are lower in proportion than that of labor, which is more expensive here than in France.
		1 hay bonnet	30		do	do	
		Specimen of plaited hay	....		do	do	
2 Mrs. Couture	Saint Ambroise	1 straw hat	15		do	do	
		1 hay bonnet	30		do	do	
		1 child's hat, hay	30		do	do	
		2 baskets made of Indian hay	5		do	do	
3 Mrs. Martel	Saint Ambroise	1 hay bonnet	30		do	do	
4 Mrs. Bouchard	Saint Valier	2 woollen shawls	20	ea	do	No. 2	All these articles are manufactured by hand loom, at the residence of the manufacturer; and the raw material is the produce of the farm of Mr. Bouchard, situate on the St. Lawrence, a few miles below Quebec.
		3 pieces of loom cloth	45	y	do	do	
		1 do do linen	4	y	do	do	
		Sample of flax	....		do	do	
		Do flax thread	....		do	do	
		Crochet Counterpane	70		do	do	
		1 piece grey linen	4	y	do	do	
		Sample of spun wool	5	lb	do	do	
		Thread cradle cover	16		do	do	
		Do table do	50		do	do	
		3 thread lace collars	3	ea	do	No. 3	
		Specimens of drugget	....		do	do	
		2 thread lace knitted caps	7	ea	do	do	
5 Mrs. Lacombe	Saint Michel	Specimen of spun wool	4	lb	do	No. 2	
		Piece coarse flannel	3	y	do	No. 4	
6 Mrs. Fisher	Quebec	Moose-down gloves	....		do	No. 2	
7 Mrs. Rhodes	Do	4 Specimens of bark-work	....		do	No. 3	
8 Pierre Gingras	Do	Dyed Marten	20	ea	do	No. 2	The specimens comprise a red

9 David Mercier	Do	1 Coat Labrador Caribou	40		do	do	marten and several dyed marten, to illustrate a peculiar process of Mr. Gingras.
		2 pairs Moose-skin shoes	10	ea.	do	No. 3	
		1 pair prepared Caribou shoes	10	ea.	do	do	
		1 pair Moose-hock boots	20		do	No. 4	
		1 Moose head with horns	£7		do	No. 23	
		1 pair Huron snow shoes	20s.		do	do	
		1 pair Montagnais shoes	20		do	do	
		1 pair Labrador shoes	23		do	do	
10 Henderson & Co.	Do	Coat of beaver and cloth	£17 10s		do	No. 2	
11 Mr. l'Abbé Malo	Bécancour	Salmon skin shoes	....		do	No. 3	
		Porcupine quill embroidery	....		do	do	
		Porcupine quill box containing Indian curiosities	....		do	do	
		Caribou skin dressed white	....		do	do	This manner of dressing caribou skins is peculiar to the Montagnais Indians of the Saguenay.
		Specimen of bird's-eye maple	....		do	No. 4	
		Collection of Indian antiquities	....		do	do	
12 Mr. Saint-Arnau	Do	Specimen of polished Ash	....		do	do	
13 Isaac Eckart	Quebec	Labrador Sealskin boots	20s.		do	do	
		1 pair ladies snow shoes	25		do	No. 23	
14 Jean Dubeau	Do	Wooden bottle	....		do	No. 4	This bottle contains four compartments, and was made with the view of uniting in one vessel all the difficulties of the cooper's art; it is exhibited as a specimen of handiwork.
15 Joseph Barbeau	Do	Caribou riding boots	£2 10s		do	do	
		Caribou hunting boots	£3		do	do	
		Porpoise skin boots	£2		do	do	
16 Olivier Giroux	Do	Dozen bottles Canada Balsam	3s.	b	do	No. 6	
		Do oil of spruce	5	b	do	do	
		Sample of extract of hemlock	16	lb	do	do	
		Do do of henbane	16	lb	do	do	
		Do do wolf's bane	24	lb	do	do	
		Do root of sarsaparilla	3	lb	do	do	
		Do do dragon's blood	3	lb	do	do	
		Do do of gold thread	10	lb	do	do	*Coptis trifolia.*
17 The Hon. Mr. Caron & Mr. Joseph DeBlois	Do	4 boxes Canada ochre	....		do	Nos. 7, 8, 10, 11	
18 Hon. Frs. Lemieux	Do	1 block Lorette granite	....		do	No. 9	
		1 block Pointe-aux-Trembles stone	....		do	No. 17	
		1 block Cap-Rouge stone	....		do	No. 18	
19 Pierre Gauvreau	Do	Specimen of shale	....		do	No. 12	The stone exhibited by Mr. Gauvreau is known as Cape Diamond black stone; the cement exhibited is made of this stone.
		Barrel of cement	....		do	No. 16	
		Pipe made of the same	....		do	No. 15	

Catalogue of Articles sent from Canada to the Paris Exhibition in 1855.—(*Continuation.*)

Name of Exhibitor.	Residence of Exhibitor.	Articles exhibited.	Market price of Article.		Special mark of the package containing the Article.		Remarks.
			Currency.				
20 Mr. Joseph Lespérance	Saint Thomas	Cod liver oil	3s	b	Quebec	No. 13	These three chairs are covered with moose deer skin, embroidered with the hair of that animal.
21 Major Rhodes	Quebec	2 drawing room chairs	£4	ea	do	No. 19	
22 Mr. William Drum	Do	1 curled maple chair	£4		do	do	
23 Mr. Thomas C Lee	Do	Model of ship	....		do	No. 20	
		Do Ocean Steamer	....		do	No. 21	
		Do River do	....		do	No. 22	
24 Mr. Abraham Coffin	Gaspé	Spring wheat	10s	bush.	Montreal	No. 1	The prices of agricultural produce in Canada are exorbitant this year, which has proved very unfavorable for the exhibition of such produce. These are chosen samples; and the prices given are those of picked seed.
25 Mr. l'Abbé Villeneuve	Montreal	Do do	10	b	do	No. 2	
		Do do	10	b	do	No. 14	
		Peas	6	b	do	No. 23	
26 Mr. George Shepherd	Do	4 samples garden peas	16	b	do	Nos. 3, 4, 5, 6	
		2 do beans	13	b	do	Nos. 11, 12	
		1 do yellow beans	16	b	do	No. 37	
		1 do darnel	15	b	do	No. 38	
		1 do buckwheat	8	b	do	No. 39	
27 Mr. William Stephens	Saint Martin	1 sample Timothy seed	16	b	do	No. 7	
28 Mr. William Evans	Montreal	1 do do	15	b	do	No. 8	
29 Mr. John McCowan	Lachine	Spring wheat	10	b	do	No. 10	
30 Mr. A. Kempton	Sainte Thérèse	Beans	10	b	do	No. 13	
		Spring wheat	10	b	do	No. 16	
31 Mr. J. F. Pelletier	Isle Jésus	Do do	10	b	do	No. 15	
32 Mr. Graham	Chateauguay	Barley	6	b	do	No. 17	
33 Mr. J. Logan	Montreal	Barley	6	b	do	No. 18	
		Carrot seed	10	b	do	No. 35	
		Do Mangel Wurzel	10	b	do	do	
34 Mr. J. Fisher	Rivière des Prairies	Barley	5	b	do	No. 19	
		Sesamum seed	10	b	do	No. 29	
35 Mr. J. Oswald	Sainte Thérèse	Barley	5	b	do	No. 20	
36 Mr. David Laurent	Varennes	Oats	3	b	do	No. 21	
37 Mr. Badham	Drummondville	Oats	3	b	do	No. 22	

38 Mr. H. Detrick	Lacolle	Peas	6	b	Montreal,	No. 24	
39 Mr. J. Dillon	Long Point	Do	6	b	do	No 25	
40 Mr. J. Clark	Do	Do	6	b	do	No. 26	
41 Mr. Walter Miller	Sainte Rose	Do	6	b	do	No 27	
42 Mr. J Robertson	Long Point	Do	6	b	do	No 28	
43 Mr. Richard Thomas	Montreal	Buckwheat flour	20	cwt.	do	No. 30	
44 Agricultural Society	Saguenay	Spring wheat	10	b	do	No. 31	
		Do do	10		do	No. 32	
		Do do	10		do	No. 33	
		Oats	3	b	do	No. 34	
45 Mr. Arch. McFarland	Montreal	Refined glue			do	No 35	
46 Mr. J. Thayer	Do	Indian corn or maize	4	b	do	No 36	
		Beans	10	b	do	do	
47 Mr. J. Sharples	Quebec	3 boards of yellow pine	The prices of timber vary according to quality, and to the demand for timber in the foreign market, and the place where it is bought. It may be said that Square Pine costs from 3d to 10d per cubic foot: Oak, from 1s 3d to 2s 9d: Birch, from 7d to 1s: Tamarac, from 6d to 1s: Cedar, from 3d to 6d: Elm, from 8d to 1s 8d: Ash, from 5d to 9d: Black Walnut, from 1s to 1s 3d: Red Pine, from 8d to 1s 2d: Yellow Pine, 3 inch planks at £12 to £15 per 100 1st quality; 2nd quality ⅔ of this price; 3rd quality, ½ of that price, St. Petersburg Standard.		Pkgs. Montreal Nos. 20, 28, 25, 15, 2, 17, 13, 8, 12, 26, 27, 3, 19, 16, 7, 35, 31.		These samples have been collected in the Quebec Lumber Market, and are the products of various parts of the Country.
		3 do do Kamouraska do					
		Boards red pine					
		2 do black spruce					
		Boards, tamarac					
		Specimen butternut					
		Do black walnut					
		Do Shell bark hickory					
		Do white oak					
		1 specimen Grey Oak					
		Do Red do					
		Do Beech					
		Do Iron Wood					
		Do White Elm					
		Do Grey do					
		Do Slippery do					
		Do White Ash					
		Do Grey Ash					
		Do Black Ash					
		Do Red Birch					
		Do White Birch					
		Do Birch					
		Do Bass wood					
		2 specimens Red Maple					
		1 do Bird's eye Maple					
		1 do Curled do					

CATALOGUE of articles sent from Canada to the Paris Exhibition in 1855.—(*Continuation.*)

Name of Exhibitor.	Residence of Exhibitor.	Article exhibited.	Market price of Article.	Special mark of the package containing the Article.
			Currency.	
48 Mr. Saint Amand....	Quebec	Roll Maple Veneer		
49 Mr. J. W. Dorwin....	Montreal	1 Pine Plank		
50 Mr. H. Morris	Do	1 Leather Trunk	....	Montreal, No. 1
		1 Single Harness	£32 10s	do do
51 Mr. Couvrette	Do	Double do	£100	
52 Mr. J. C. Spence.....	Do	2 specimens of Painting on glass..	£40 for the whole.	
53 Mr. T. D. Hood......	Do	1 piano	£150	do Nos 5, 7
54 Mr. H. G. Rose	Do	2 specimens of typography	....	do No. 5
55 Robert Dean	Do	Portable Forge	£7 10	do No. 6
		2 Leather Portmanteaus.........	....	do Nos. 10, 90
56 Mrs. Colby..........	Hatley...........	Flannel	10s sample	do No. 7
		1 Woollen Shawl and 3 pairs Socks	....	do No. 10
57 Mr. Simon Bean.....	Do	1 do and Blankets ...	....	do do
		3 pairs Woollen Socks	....	do No. 72
58 Mr. N. Valois	Montreal..........	17 yards Woollen Cloth.........	4 y	do No. 10
		2 bottles Maple Syrup	2 6d b	do No 48
		Specimens of Tanned Leather..	£11 16s 2 lots	do No. 50
		Dyed Ship Skins		do No. 72
		Maple Sugar.......	3d lb.	do No. 75
59 Messrs. W. Smith & Co.	Do	Boxes of Boots and Shoes........	43 16s lot.	do No. 8
60 Taylor & Dockville ..	Do	Sewing Machine	25	do No. 9
61 Mr. Edouard Gauthier	Do	Complete Suit *Etoffe du pays*	8 10	do No. 9
62 Mr. Geo. Barington...	Do	Single Harness	30	do No. 10
63 Grey Nuns..........	Do	Thread Work..................	....	do No. 10
64 Starke & Co	Do	Specimens of Typography.......	....	do do
65 Messrs. R. & A. Miller	Do	Do Binding	....	do do
66 Mrs. S. Mackay......	Do	Do do	....	do do
67 St. John's News	St. John's	1 Copy of Paper printed on Satin.	....	do do
68 Mr. P. Dunn	Montreal	Nail Mill	75	do Nos. 11, 16, 25, 30.

This method of preparing wood for veneering, by Mr. St. Amand, consists in cutting circumferentially a transverse section of the tree into a very thin sheet, which has the general appearance of a piece of cloth. The specimen sent is about 26 yards in length, by about 19 inches in width.

69 Mr. Daniel Monnereau	Montreal	Planing Machine	£145	do Nos. 12, 19, 31	
70 Mr. Robert Romain	Peterborough	Steam Plough	£800	do Nos. 13, 14, 15, 20, 23, 24, 32, 49, 99, 29.	
71 Mr. B. P. Paige	Montreal	Thrashing Machine	£65	do Nos 16, 68, 71, 74, 101, 104, 110	
72 Mr. D. J. Smith	Do	Axe handles	20s lot	do No. 16	
73 Mr. J. H. Ryland	Do	2 Oil Paintings	....	do Nos. 17, 74	
74 Montreal India R. Co	Do	Specimens of India Rubber shoes.	£7 10s lot	do Nos. 18, 72, 75	
75 Mr J. Dawson	Do	Set of Tools	£12 15s lot	do No. 21	
76 Mr. W. Wallace	Do	Do	....	do do	
77 Mr. A. Laflamme	Do	Oil Cloth	....	do do	
78 Sisters of Providence.	Do	Wax work	22 lot	do No. 22	
79 Mr. W. Rodden	Do	Planing machine	75	do Nos 26, 27, 30, 35, 88, 97	
		Machine for making Tree-nails	25	do No. 34	
		Shop Hooks	....	do No. 35	
		Castings	£7 10s	do No. 36	
		2 Stoves	....	do No. 51, 55	
		Turning Lathe	....	do No 76	
		Scales	....	do No. 77	
80 Mr. Pietro Moretti	Do	Oil Painting	....	do No. 28	
81 Mr. J. Jeffries	Petite Côte	Sub soil Plough	£6	do No. 33	
		Root cutter	....	do No. 79	
82 Mr. Thos. Jenkings	Montreal	Ship blocks	25s	do No 34	
		Ox hair	....	do No. 68	
		Brushes	....	do No. 72	
83 Mr. Clark	Do	Ship blocks	£3 10s	do No. 34	
84 Mr. Hood & Brothers.	Do	Braces (Ships)	30s	do No. 35	
85 Mr. H. Holland	Do	Tree nails	....	do No. 35	
86 Mrs. McCulloch	Do	Stuffed Birds of Canada	....	do No 37 to 47 & 139	
		Deer horns	....	do No. 81	
87 Mr. Thos. Keefer	Do	Black Porpoise Oil	....	do No. 48	The prices of a great number of articles have not been given by the Montreal Central Committee, and it has been impossible to supply the deficiency.
88 Mr. A. Archambault	Do	2 bottles Harness Varnish	....	do do	
89 Mr. C. T. Fox	Do	2 bottles Neat's Foot Oil	5s	do do	
90 Mr. J. Fisher	Rivière des Prairies	1 bottle Oil of Sesamum	....	Montreal, No. 48	
91 Mr. Richard Thomas	Montreal	Sausage	....	do do	
92 Mr. W. Price	Do	Fanning Machine	£16 10s	do 50	
		Grain sieve	....	do 68	

CATALOGUE of Articles sent from Canada to the Paris Exhibition in 1855.—(*Continuation.*)

Name of Exhibitor.	Residence of Exhibitor.	Article exhibited.	Market Price of Article.	Special mark of the package containing the Article.	Remarks.
93 Mr. Moody	Terrebonne	Reaping Machine		do Nos. 51, 55, 82, 95, 69	
		Machine for separating Clover		do No. 91	
		Horse Rake		do No. 104	
94 Mr. Andrew Dickson.	Kingston	Specimens of Wood		do No. 52	There are 64 of these specimens of Wood, one half of which have been collected on a superficies of 100 arpents of forest.
95 Mr. John Robbs	Montreal	Biscuits		do No. 53	
96 Mr. Clark Fitts	Do	Do		do do	
97 Mr. George Cross	Do	Cheese		do No 54	
98 Mr. J. W. Hilton	Do	4 Chairs		do No. 56	
		2 Large Chairs		do No. 57	
		1 Sofa and a specimen of feathers.		do No 58	
99 Mr. Bauden	Do	2 Bear Hams		do No. 59	
		2 Neats' Tongues		do No. 60	
		1 barrel of Pork		do No. 61	
		4 salted Hams		do No. 62	
		Salted Pork		do No 63	
		3 pieces of salted Hams		do No 64	
		Salted Beef		do No. 65	
		Dried Hams		do No. 66	
		Smoked Hams		do No. 67	
100 Mr. Lamouche	Do	Wooden Shovels		do No. 68	
101 Messrs Nelson, Butters	Do	Corn Brooms		do No. 68	
102 Messrs. Corse & May	Do	Linseed		do No. 69	
103 Mr. C. P. Ladd	Do	Mill		do No. 69 73, 110, 114	
		Scales		do No. 105	
		Metallic Coffin		do No. 106	
		Wood Lathe		do Nos. 107, 108 109	
104 Mr. Paterson	Do	Plough		do No. 70	

105 Mr. George Glasford.	Brockville	3 pairs of Horse Collars		do	No. 71
106 Mr. John Coombs...	Do	4 do do		do	do
		2 Saddle Trees		do	do
107 Mr. G. Prowse	Montreal	1 Refrigerator		do	No. 72
108 Mr. John Boyd.	Do	Brushes		do	do
109 Mr. F. M. Ossaye...	Sault au Récollet	Sample of Hemp		do	do
110 Mr. Southwick	Mont Saint Hilaire	Sample of Wool		do	do
111 Messrs. Murphy	Montreal	Fishing Lines		do	do
112 Mr Fergusson	Do	Engine Hose		do	do
113 Mr. Knox	Lachine	Flax		do	do
114 Mr. Lyman & Co...	Montreal	Fish Glue		do	do
		Wax		do	No 75
		Saffron		do	No. 81
115 Mrs. Cushing	Do	Oil Painting		do	No. 72
116 Mr. James Taylor...	Hatley	Maple Sugar		do	do
117 Mrs P. Langevin	Montreal	1 Table cover		do	do
118 Mrs. Vancelow	Do	1 Do		do	do
119 Mr. Ashton	Do	Pickles		do	No. 75
120 Mr. W. Idler	Do	Sausage		do	do
121 Mrs Ranger	Acadie	Hay Hats		do	Nos 75, 81
122 Mr. John Peacock...	Montreal	Fish Hooks		do	do
123 Mr. Jones	Do	Spades		do	No. 76
124 Mr. Parkyn.	Do	Iron Shovels		do	do
125 Mrs. Davis	Do	Needle Work		do	No. 77
126 MM. Bohlé & Andry.	Do	Plate		do	No. 78
127 Local Committee of.	Brockville	Needle Work		do	do
		Ox Yoke		do	No 82
		Spinning Wheel		do	No. 87
		Rakes		do	No. 115
128 Mr. Higgins	Montreal	Axes		do	No. 80
129 Mr. G. Shepherd....	Do	Aguti-guépa		do	No. 79
		Corn Starch		do	do
		Preserved Apples		do	do
		Preserved Potatoes		do	do
		Preserved Beef		do	do
130 Mrs. Lacombe	Saint Michel	Potatoe Starch		do	do
131 Mr. Owen McGarvey	Montreal	5 Chairs		do	No. 81
132 Mr. W Evans	Do	Plans of Canadian Farm		do	Nos. 81, 86
133 Mr. McGibbon	Do	Hoops		do	Nos. 82, 110

CATALOGUE of articles sent from Canada to the Paris Exhibition in 1855.—(*Continuation.*)

Name of Exhibitor.	Residence of Exhibitor.	Article exhibited.	Market Price of Article.	Special mark of the package containing the Article.	Remarks.
			Currency.		
134 Mr. J. Ostell	Montreal	Wooden Doors	....	Montreal No. 85	
		Wooden Blinds	....	do No. 100	
		Model of Montreal Court House ..	....	do Nos. 111, 112	
		Box and Mould for Sugar Loaves.	....	do No. 84	
135 Messrs Starke & Co.	Do	Specimens of Printing	....	do No. 86	
136 Mrs. Jones	Do	Oil Painting	....	do Nos. 86 & 138	
137 Miss Shepherd	Do	Drawings of Plants & vegetables .	....	do do	
138 Mr. J. C. Doane	Do	Photographic Portraits	....	do do	
139 Messrs. Salter & Ross	Do	Specimens of Printing	....	do Nos. 83, 84	
140 Mr. S. R. Andres ...	Chambly	Paper made of *gnaphalium*	....	do No. 87	This is a new discovery of a purely Canadian nature.
141 Mr. C. Lindlay	Montreal	Bellows	....	do do	
142 Mr. G. Barington ..	Do	Saddles	....	do do	
143 Mr. J. Redpath.....	Do	Lot of Maple Sugar	....	do do	
144 Mr. André Larivière	Do	Harness	....	do do	
145 Mr. G. Sohier	Do	Wooden Figure	....	do No. 90	
146 Mr. J. Dagg........	Do	Oatmeal	....	do No. 91	
147 Mr. T. D. Proctor...	Do	Indian Meal	....	do do	
148 Mr. J. McDougall ...	Do	Wheaten Flour	....	do do	
149 Mr. Robert Scott ...	Do	Edge Tools....................	....	do No. 92, 93	
		Augers	....	do No. 113	
150 Mr. Thos. Peck & Co.	Do	Samples of Nails..............	....	do No. 94	
151 Mr. Dame & Son ...	Lachine	Hops	....	do No. 96	
152 Mr. McLellan	Montreal	Mortising Machine.............	....	do No. 98	
153 Mr. Sharples.......	Quebec	Specimens of Timber	....	do No. 102, 103	
154 Mr. Kennedy.......	Montreal	Do Do	....	do No. 103	
155 Mr. W. Hearle	Do	Soap	....	do No. 113	
156 Mr. Cantin.........	Do	Boat Oars	....	do No. 116	
157 Mr. C. H. Tètu	Rivière Ouelle.....	Whale Oil.....................	4s gallon	Quebec No. 24	
		Seal Oil......................	5 gallon	do do	
		Porpoise Oil..................	5 gallon	do do	

157 Mr. C. H. Têtu	Rivière Ouelle	Caplan Oil	5s 6d gallon	do	do	
		Shark Oil	5 gallon	do	do	
		Specimens of Porpoise Leather	30 skin	do	No. 25	
158 Mr. A. Ardouin	Quebec	Medicinal Plants		do	No. 26	
159 Messrs. J. C. Taché and T. Michaud	Rimouski	Samples of Grey Paint	1s 3d lb prepared with Oil.	do	No. 27	This grey paint is found in its natural state, and is not produced by any mixture of colors.
		Do Sienna	2 do	do	do	
		Do do	do do	do	do	
160 Messrs. Lepage and Lévêque	Do	Do Black Porpoise Oil	5 gallon	do	No. 28	
161 Mr. Jean Saint Pierre	Do	Spring Wheat	10 bushel	do	No. 29	
162 Capt. Thomas	Toronto	Model of Safety-raft		do	No. 30	
163 Mr. Célestin Lévêque	Rimouski	Tamarac Knee	£2 10s	do	No. 31	
164 Mr. Joseph Lavoie	Do	Sample of Tamarac		do	No. 37	
165 Mr. Abraham Lavoie	Do	Do White Spruce		do	No. 36	
166 Mr. Jean Marmon	Do	Do Cherry Birch		do	No. 35	
167 Miss Cochran	Quebec	Wax Fruit	£10	do	No. 38	
168 Mess. Dion & Lepage	Rimouski	Large Model of Thrashing Mill	£15	do	No. 39	
169 Dr. Marmette	Montmagny	Canadian Tobacco	5d lb	do	No. 40	
170 Mr. David Price	Chicoutimi	Mocassins embroidered with silk	5s	do	No. 40	
171 The Secretary of the Committee	Quebec	Do soled with India Rubber	17s	do	No. 40	
172 Mr. Nicolas Pinault	Rimouski	Sample of Coffee	6d	do	No. 40	
173 Mr. P. Bouchard	Quebec	Do Curled Maple		do	No. 40	
174 Mr. J. Bingham	Norwich	Iron Plough	£15	Toronto	No. 1	
175 Mr. J. Carr	Toronto	Glue	2 10s lot	do	do	
		Sample of horse hair Rope	6 15 do	do	do	
		Glue Mould	6	do	No. 15	
176 Mr. Thomas Moore	Mimico	Collection of Tool Handles	6 7 do	do	No. 1	
177 Mr. J. Treckeld	Toronto	Do Whips	27 do	do	do	
178 Mr. F. Jones	Gananoque	Shovels	3 do	do	do	
179 Messrs A. & D. McGregor	Toronto	Collection of Rope	£20 do	do	Nos. 1, 3	
180 Messrs Barber & Bros	Esquesing	3 samples of Wool	0 5	do	No. 1	
		6 pieces of Cloth	£25 15 do	do	No. 2	
		2 samples of Spun Wool	£ 2 10 do	do	do	
181 Messrs. Houghton & Wallace	Brantford	Leathers	£29 5 do	do	No. 1	
182 Mr. W. Crawford	Toronto	Mustard	0 10 do	do	No. 1	
183 Mrs. Moore	Etobicoke	Socks	0 18 do	do	No. 2	

CATALOGUE of articles sent from Canada to the Paris Exhibition in 1855.—(*Continuation.*)

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			Currency.		
184 Mrs. Musson	Etobicoke	3 pairs of Socks	£2 10s lot	Toronto No. 2	
185 do Harper	Do	3 do do	1 8 do	do do	
186 Mr. L. Torrey	Newmarket	5 pieces of Cloth	28 10 do	do do	
187 Mr. Robert Walker	Toronto	3 do do	15 4 do	do do	
188 Messrs. Bryce, McMurrich & Co.	Do	3 do do	8 12 do	....	
189 Mr. Thos Wheeler	Do	Feather Boa	5 do	do do	
190 Mrs. Stiffel	Do	3 Counterpanes	7 do	do do	
191 Mrs. Silverthorn	Cooksville	1 do embroidered	7 10 do	do do	
192 Mrs. Pollard	Hamilton	Embroidered Slippers	8 1 do	do do	
193 Mr. L. Morse	Milton	Wooden Plough	15 4 do	do No. 3	
194 Captain Hudson	Toronto	Models of Boats	....	do do	
195 Messrs. Hearn & Potter	Do	Engineer's Level	30	do do	
196 Mr. Robt. Smiley	Hamilton	Samples of Shirts	6 do	do do	
197 Miss Widder	Toronto	Drawing Room Chair	....	do do	
198 Messrs. Merrifield & Sheridan	Do	2 pairs of Boots	3 10 do	do do	
199 Messrs. Seanbirth & Robinson	Do	5 do do	20 8 do	do do	
200 Mr. S. Ebenezer	Do	2 dozens Gloves	1 15 do	do No. 3	
201 Mr. J. Murphy	Do	12 samples of colouring	10 0 do	do do	
202 Revd. Peter Jones	Brantford	Indian Curiosities	....	do do	
203 Mr. J. Bevis	Hamilton	Round Table	30	do Nos. 4, 5	
204 Mr. E. R. Campbell	Do	Harness Mounting	7	do No. 6	
205 Mr. Alexander Shane	Toronto	2 samples of Indian Corn	2 10 2 lots	do Nos. 7, 8	
		Barrel of Spring Wheat	1	do No. 9	
206 Mr. Piper & brother	Do	Lanterns for Locomotives	26 10	do No. 10	
207 Mr. John Nasmith	Do	Biscuits	5 10	do No. 11	
208 Mr. J. Booth	Niagara Falls	Stuffed Animals	20	do No. 12	
		Do Birds	6 5	do No. 22	

209 Mr. N. W. Fox	Toronto	Samples of Slate	£2 10s	do	No. 15	
210 Mr. W. & R. Edwards	Do	Saddles	30 lot	do	No. 14	
211 Mr. W. B. Jarvis	Do	Building Materials		do	No. 16	
212 Mr. H. H. Date	Galt	Edge Tools	250 do	do	No. 17	
213 Professor Croft	Toronto	Pharmaceutical Preparations	5 do	do	No. 18	
214 Mr. W. Armstrong	Do	2 Water Color Drawings	40	do	No. 19	
215 Mr. Whitefield	Do	2 Engravings	7	do	do	
216 Mr. W. Thomas	Do	5 Architectural Designs		do	do	
		Stone Model of Brock's Monument		do	No. 67 to 76	
217 Mr. Kivas Tully	Do	4 Architectural Designs		do	No. 19	
218 Mr. Paul Kane	Do	4 Oil Paintings		do	No. 20	These paintings represent scenes in the western prairies of America.
219 Mr. D. Kennedy	Do	Collection of Stuffed Birds of Canada	25	do	No. 21	
220 Mr. O. T. Macklem	Chippewa	Sample of Leather	8 8	do	No. 23	
		Stove	3	do	No. 24	
221 Mr. Edward Lawson	Toronto	Barrels of Flour	2 10	do	No. 25	
		Biscuit	1 5	do	No. 26	
222 Mr. James Fleming	Do	Field Pease	1	do	No. 37	
		Timothy Seed	1 18	do	No. 44	
		12 varieties of Seed	6	do	No. 49	
223 Mr. J. W. Gamble M P	Vaughan	Plank of White Pine		do	No. 27	
		Do Yellow do		do	No. 28	
		Log of Black Oak		do	No. 29	
		Plank of Birch		do	No. 30	
		Do Elm		do	No. 31	
		Log of Elm		do	No. 32	
		Do Birch		do	No. 33	
		Do White Pine		do	No. 34	
		Do Yellow do		do	No. 35	
		Plank of Red Oak		do	No. 36	
224 Mr. R. Wade	Cobourg	Buck Wheat	20s sample	do	No. 38	
		Oats	10 do	do	No. 40	
		Barley	15 do	do	No. 42	
		Spring Wheat	30 do	do	No. 43	
		Rice	15 do	do	No. 47	
		2 Cheeses	£2 8s do	do	No. 48	
225 Canada Company	Toronto	Fall Wheat		Toronto	No. 39	
		Do do		do	No. 48	
226 W. Samuel Platt	Blenheim	Barrel of Flour	2 15	do	No. 45	

Catalogue of articles sent from Canada to the Paris Exhibition in 1855.—(*Continuation.*)

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			Currency.		
227 Mr. F. W. Jarvis....	Toronto.............	Hops..........................	£3 6s.	Toronto No. 46	
228 Mr. D. Wilson......	Do..............	Canadian Tobacco..............	1 18	do No. 48	
229 Messrs. Moyer & Keating...........	Louth..............	Dried Fruits..................	1 15	do do	
230 Mr. Alexander Shaw	Toronto............	Chicory.......................	0 5	do No. 49	
231 Mr. P. Leonard.....	Do..............	Chicory.......................	0 5	do No. 49	
232 Mr. W. Gamble....	Etobicoke.........	Barrel of Oatmeal.............	2	do No. 50	
		Do Split Pease............	1 10	do No. 51	
		Do Rye Flour..............	2	do No. 52	
		Do Indian Meal............	1 10	do No. 53	
		Do Buck Wheat Flour.......	2 10	do No. 54	
		Do Pea do........	2	do No. 55	
		Do Barley do........	2 5	do No. 56	
		Do Wheat do........	2 3	do No. 57	
233 Messrs. Helm & Wade	Port Hope..........	Piercing Machine..............	30	do Nos. 58, 59, 60, 61	
234 Mr. J. Parson......	Toronto............	....	....	do Nos. 62, 66	
235 Mr. Louis Lemoine..	Quebec.............	Fire Engine...................	£300	Quebec Nos. 32, 33, 34	
236 Lieutenant Ashe....	Do..............	Model of Safety Apparatus......	....	do No. 41	
237 Ottawa Company...	Hull...............	Magnetic Iron..................	15s ton	Geological No. 1	
238 Mr. Lewis Sleeper..	Quebec............	Do do	....	do No. 2	
		Copper Ore....................	....	do No. 13	
		Native Gold...................	....	do No. 17	
239 Mr. George Stevens.	Newborough.........	Magnetic Iron..................	20s do	do No. 1	
240 Marmora Foundry ..	Marmora............	Do do	....	do No. 3	
241 Mr. Seymour.......	Madoc..............	Do do	....	do No. 4	
242 Mr. Alexander Morris	Montreal...........	Do do	....	do No. 5	
243 Mr. J. Porter & Co..	Saint Maurice......	Bog Iron......................	....	do No. 6	
		Sandstone.....................	....	do No. 49	

244 A. Larue & Co	Three-Rivers	Ground Limestone		do	No. 6
		Sand Stone		do	do
		Casting Iron	18 p. lb.	do	do
		Malleable Iron	25 p. cwt.	do	do
		Bog Iron		do	No. 7
		Charcoal		do	do
		Limestone for casting		do	do
		Clay		do	do
		Moulding Sand		do	do
		Cast Iron		do	do
245 Mr. Andrew Dickson	Kingston	Specular Iron		do	No. 8
		Do do		do	No. 9
		Marble		do	No. 26
		Shell Marl		do	No. 58
246 Mr. H. L. Smith	Sutton	Titaniferous Iron		do	No. 8
247 Mr. Oramel Stutson	Do	Do do		do	No. 10
248 Geological Dpt	Montreal	Dolomite		do	No. 11
		Ilmenite		do	do
		Titaniferous Iron		do	No. 11
		Specular Iron		do	No. 14
		Copper Ore		do	No. 16
		Do Zinc		do	do
		Native Silver with Copper		do	do
		Auro argentiferous Copper Ore		do	do
		Argentiferous do do		do	do
		Uranic Ochre		do	No. 17
		Chromic Iron		do	do
		Magnetic Pyrites		do	do
		Iron Pyrities		do	No 18
		Chromic Iron		do	do
		Dolomite		do	No. 19
		Jasper Agglomerate		do	No. 20
		Dolomite		do	do
		Wad or Earthy Manganese		do	do
		Cobalt		do	No. 21
		Limestone		do	do
		Marble		do	No. 25
		Serpentine		do	do
		Marble		do	No. 26
		Ochre		do	do

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			Currency.		
248 Geological Department.—(*Continued.*)	Montreal	Building Sandstone	....	Geological No. 27	
		Hydraulic Limestone	....	do No. 28	
		Building Stone	....	do No. 30	
		Do do	....	do No. 37	
		White Bricks	....	do No. 53	
		Lithographic Stone	....	do No. 61	
		Roofing Slates	....	do No. 68	
		Hydraulic Limestone	....	do No. 69	
		Canadian Tripoli	....	do No. 70	
		Agates	....	do No. 71	
		Jasper	....	do do	
		Ribboned Chert	....	do do	
		Whetstones	....	do No. 73	
		Specular Iron	....	do No. 78	
		Lead Ore	....	do do	
		White Quartz Sandstone	....	do No. 80	
		Fossil Traces of a crustacea	....	do No. 81	
		Do do do	....	do No. 82	
		Do do do	....	do No. 83 & 86	
		Aerolite	....	do No. 85	
		Limestone and other articles	....	do Nos. 47	87, 88, 91 & 92.
249 Mr. B. Vanerman	Tilsonbury	Bog Iron	....	do No. 12	
250 Captain Morin	Saint Valier	Do	....	do No. 14	
251 Mr. J. McLean	Ramsay	Lead Ore	....	do No. 14	
252 Mr. Blint	Landsdown	Do	....	do No. 14	
253 Montreal Company	Montreal	Copper Ore	....	do No. 15	
		Do do	....	do do	
		Do do	....	do No. 16	

254 Quebec Company ...	Quebec	Native Copper..................	....	do	No. 16
		Do do	....	do	No. 78
255 Mr. W. Norton	Bolton	Chromic Iron	....	do	No. 18
256 Mr. J. Douglas	Quebec	Auriferous Pyrites	....	do	No. 17
		Argentiferous Lead Ore.........	....	do	do
		Arsenical Pyrites	....	do	do
		Zinc Ore........................	....	do	do
257 Mr. C Samson......	Point Levi	Dolomite........................	....	do	No. 19
258 Mr. U. Foster	Brome	Do	....	do	do
259 Dr. Wilson	Perth.............	Barytes.........................	....	do	do
		Phosphate of Lime	....	do	No. 22
		Perthite	....	do	Nos. 71 & 91
260 Mr. W. Yates	Paris (Canada West)	Gypsum	....	do	No. 22
261 Spotter, Wood and Reynolds..........	Do	Do	....	do	No. 23
262 Mr. J. Donaldson....	Oneida..............	Do	....	do	No. 24
263 Mr. R. Chesman....	Philipville	Marble..........................	....	do	No. 25
264 Mr. D. McLaughlin..	Ottawa	Do	....	do	do
		Do	....	do	No. 26
		Building Stone..................	....	do	No. 30
265 Mr. Etienne Caron...	Ste. Anne	Red Ochre	....	do	No. 26
266 Mr. A. Monroe & Co.	Pointe du Lac........	Do do	....	do	do
267 Mr. H. Woodward...	Potton	Powdered Soap Stone...........	....	do	do
268 Mr. O'Connor	Lansdown	Barytes.........................	....	do	do
		Do	....	do	No. 62
269 Grand Trunk Railway Company...	Canada	Building Stone..................	....	do	No. 29
		Do do	....	do	No. 31
		Do do	....	do	No. 32
		Do do	....	do	No. 33
		Granite	....	do	No. 39
		Do	....	do	No. 40
		Sand Stone......................	....	do	No. 41
		Building Stone..................	....	do	No. 74
270 Mr. Samuel Keefer..	Brockville	Do do	....	do	No. 34
		Do do	....	do	No. 35
271 Mr. R. Brown	Lake Rice	Do do	....	do	No. 38
272 Mr. P. White.......	Pembroke	Sand Stone......................	....	do	No. 42
273 Messrs. Hilliard and Dickson........	Packenham	Do do	....	do	do

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			Currency.		
274 Mr. J. Calway	Saint Joseph	Granite		Geological No. 44	
275 Mr. J. Primerman	Barnston	Do		do No. 45	
276 Messrs. Hutchison & Morrison	Montreal	Sand Stone	2s. per cubic ft. prepared	do No. 46	
277 Mr. McDonald	The Chats	Do do		do No. 48	
278 Mr. J. Leeming	Montreal	Sand Stone prepared by machinery		do No. 50	
		Do do do		do No. 51	
279 Mr. Edmund Berry	Brockville	Do do with the chisel		do No. 52	
281 Mr. Townley	Toronto	White Bricks		do No. 53	
282 Mr. T. Martindale	Onéïda	Gypsum		do No. 54	
		Do		do No. 76	
282 Thomas Keefer	Montreal	Building Limestone		do No. 55	
		Building Stone		do No. 84	
283 Mr. J. McMannus	Bolton	Compact Chlorite (Pot Stone)		do No. 56	
		Do do		do No. 57	
284 Mr. Sparkes	Bytown	Fresh Water Shell Marl		do No. 58	
285 Mr. A. Groman	Belleville	Do do do		do do	
286 Hon. T. MacKay	New Edinburgh	Do do do		do do	
288 Mr. L. M. Cyr	Sainte Rose	Do do do		do do	
288 Mr. Sheriff Boston	Montreal	Do do do		do do	
		Pressed Peat		do No. 72	
289 Mr. L. K. Benton	Stanstead	Do do		do do	
290 Mr. J. Whitcomb	Hawkesbury	Do do		do do	
291 Messrs S. & R'Andres	Chambly	Asbestus		do do	
292 Messrs. White & Gallopp	Melbourne	Compact Chlorite		do No. 59	
293 Mr. M. Abbot	Montreal	Soap Stone		do No. 60	
294 Mr. H. Woodward	Potton	Do		do do	

295 Mr. R. Lancaster...	Vaudreuil	Bog Iron		Geological No. 63
		Phosphate of Iron		do No. 70
296 Slate Company of..	Shipton	Slate		do No. 64
297 International Company	Hamilton	Asphalt		do No. 65
298 Mr. James Brown...	Saint Catherines	Thorold Cement		do No. 66
		Hydraulic Limestone		do No. 67
299 Mr. J. Guy	Melbourne	Slates		do do
300 Mr. Joseph Tardif..	Tring	Do		do No. 68
301 Mr. J. Leslie	Sherbrooke	Do		do do
302 Messrs. Sykes, Debergue & Co	Montreal	Labradorite		do do
		Do		do No. 77
303 Mr. J. Scobell	Montreal	Peat pressed and unpressed		do No. 72
304 Messrs. Gilmour &				do No. 73
Jackman	Kingsey	Whetstones		do No. 73
305 Mr. T. Logan	Montreal	Cut Stone incrusted with Gold		do No. 75
306 Mr. F. Inlay	Grenville	Mica		do No. 79
307 Board of Public Works	Quebec	Model of Flood-gate		Quebec, No. 42
		Do of Bridge		do No. 43
		Plan in relief of Lachine Canal		do No. 44
308 Messrs. Farmer & De Blaquière	Woodstock	59 Specimens of Wood		Woodstock from No. 1 to No. 26.
309 Mr. D. Mercier	Quebec	Indian Work		Quebec, No. 45
310 Mr. T. Wheeler	Toronto	Seal Engraving		
311 Mr. J. Perry	Montreal	Fire Engine	£225	Montreal, No. 134 to 137
312 Mr. Edouard Gingras	Quebec	Four Wheel Vehicle	175	
313 Directors of the Grand Trunk Railway...	Canada	Plan of Victoria Bridge in wood..		
314 Mr. J. Saurin	Quebec	Canadian Pleasure Sleigh	115	
315 Mr. Jas. Logan	Montreal	Chaudière Gold	1,050	Geological No. 89
316 Mr. R. A. Miller	Do	Specimens of Binding		Montreal No 138
317 Mr. A. Young	Do	do do		do do
318 Miss Parthenais	Industry	Worsted Work		do do
319 Mr. C. Billinge	Ottawa	Iron Silicate		Geological No. 90

Catalogue of articles sent from Canada to the Paris Exhibition in 1855.—(*Continuation.*)

Name of Exhibitor.	Residence of Exhibitor.	Articles exhibited.	Market Price of Article.	Special mark of the package containing the Article.	Remarks.
320 Mr. l'Abbé Tanguay.	Rimouski	Fossil remains of a Morse........	....	Quebec No. 46	These remains were found about three miles from the shore and 100 feet above the level of the St. Lawrence, imbedded in 3 feet of clay.
		4 Parasite crustacea of the Whale.	....	do do	
		3 Indian Curiosities.............	....	do do	
		3 specimens of Fossils...........	....	do do	
321 Mr. Zéphirin Perrault	Kamouraska.........	Sample of Asbestus............	....	do do	

J. C. TACHÉ,

Secretary of Executive Committee.

To the articles above enumerated must be added a Geological Chart of Canada, by Mr. Logan, and a Topographical Map, by Mr. Keefer.

A certain number of articles, about forty, altogether, were voluntarily contributed by exhibitors from various places. The greater part of these articles have no great intrinsic value; but the articles of the exhibitors whose numbers and names are mentioned below are not in the same category, and the Executive Committee have guaranteed the return of their several contributions:

11.	Mr. l'Abbé Malo,	see Catalogue.	
73.	Mr. J. W. Ryland,	do	
80.	Mr. Pietro Moretti,	do	
86.	Mrs. McCulloch,	do	(£300 guaranteed.)
218.	Mr. Paul Kane,	do	(property of Mr. Allan.)
310.	Mr. D. Mercier,	do	
315.	Mr. l'Abbé Tanguay,	do	

In the descriptive Catalogue published in Paris during the Exhibition will be found all the particulars, which it could not be expected would be included in the foregoing lists, which are only given here to shew the plan adopted in forwarding the articles.

Such was the collection sent to Paris under the immediate superintendence of Messrs. J. C. Taché and W. E. Logan, who were appointed Special Commissioners, charged to support and advance the interests of Canada at the Great Universal Exhibition of 1855. Other gentlemen, of whom Messrs. De Puibusque, Bossange, Maitland, and Boulton, resided at Paris, and others of whom were expected speedily to arrive at the place of Exhibition, were added to the Commission in the capacity of Honorary Commissioners, and Messrs. Romain and Perry were appointed Curators of the Articles.

Expenses of the Committee.

The following table exhibits, under their different headings, the sums appropriated and expended by the Committee. The Accounts in detail having been handed to the Auditors of the Public Accounts, with the necessary vouchers and explanations, the whole, upon examination, have been approved and found to be correct:

PARIS EXHIBITION, 1855.

DETAILED statement of the expenses of the Canadian Department.

Items of Expenditure.	Quebec. £ s. d.	Montreal. £ s. d.	Toronto. £ s. d.	Paris. £ s. d.	Total. £ s. d.
To the Commissioners and curators of effects, including gratuity to Mr. Perry £500	....	....	....	2589 9 4	2589 9 4
Office expenses and contingencies	1031 7 6	180 0 3	185 14 6	341 10 11	1738 13 2
Printing and advertising	108 1 8	25 2 4	61 12 8	456 18 7	651 15 3
Purchase of articles for exhibition	3111 1 3	1871 10 5	1333 14 4	166 17 7	6483 3 7
Packing and carriage	1699 11 0	306 17 3	104 7 10	322 4 10	2433 0 11
Installation at Paris	....	....	....	1612 12 1	1612 12 1
Publication and distribution of pamphlets	1815 13 9	....	....	188 14 2	2004 7 11
Total expenditure	7765 15 2	2383 10 3	1685 7 4	5678 7 6	17513 2 3
Less amount received from sale of articles	....	10 5 6	8 2 6	1313 16 7	1332 4 7
Total expenditure	7765 15 2	2373 4 9	1677 6 10	4364 10 11	16180 17 8

Explanation of the balance		£ s. d.
Due by Mr. Logan		6 19 3
do Mr. Taché		31 4 9
Montreal Bank		1273 15 2
		£1311 19 2
Less appropriations.		
Mr. Perry	£500 0 0	
Mr. Allan	167 16 10	667 16 10
Balance		£ 644 2 4

	£ s. d.
Received from Government	15000 0 0
Do £1,500, stg., equal to	1825 0 0
Total	16825 0 0
Expenditure deducted	16180 17 8
Balance £	644 2 4

Toronto, 22nd April 1856.

WM. LANGTON,
Auditor.

The expenses are charged under several principal series, and, for reasons to be explained hereafter, are distributed under the several headings of Quebec, Montreal, Toronto, and Paris. No. 1 comprises sums disbursed as travelling expenses of the two Commissioners, the salaries of the two Curators, the sum of £500 a gift to Mr. Perry, and various other expenses. No. 2 includes contingencies of all kinds, and items of expenditure which are not referable to any other head. No. 3 consists of sums paid for advertisements in the journals, &c., &c., and at Paris for the printing of Mr. Stuart's Geological Chart, of Mr. Taché's descriptive Catalogue, and other expenses of the kind. No. 4 shows the cost of the various articles. No. 5 is composed of the expenses of packing and carriage of articles from different parts of the country, to Quebec, Montreal, and Toronto in the first instance; from thence to Boston and New York, and finally from these two seaports to Liverpool and Havre. No. 6 is a classification of the sums disbursed at Paris in the arrangement of the articles for exhibition, the preparation of counters and glass-cases, and for purposes of embellishment, &c. No. 7 shows the sums expended at Paris for the publication of Mr. Taché's Essay, and for that of the other Essays in Canada.

The labor of collection was shared, as will appear by the statement of expenditure, between the Executive Committee, and the Central Committees of Montreal and Toronto. The articles purchased by the Executive Committee were indifferently the produce of Upper or Lower Canada, and furnished chiefly by contributors of that class who had previously received prizes at the London and New York Exhibitions, and by those who had been fortunate enough to obtain first class prizes at the Provincial Exhibition.

The articles acquired by the Central Committee at Toronto were exclusively Upper Canadian; those purchased by that of Montreal were exclusively Lower Canadian.

In their prospectus, above quoted, the Executive Committee laid down as a principle, that the products of mines, forests, and agriculture, should necessarily receive the highest degree of attention; accordingly, the display of products of these three kinds was truly magnificent, and the premiums obtained were such as to give full satisfaction to all who were interested in exhibiting the natural resources of our country to the greatest advantage.

It is not necessary to give a methodically classified catalogue of the agricultural products sent to Paris. The samples were numerous, very fine, and in great variety. Fruits and vegetables being naturally prone to decay very speedily, and thereupon not admitted into the building in their original state, were nevertheless represented, either in the shape of

preserves of different kinds, by drawings, or by being modelled in wax, from nature. The following classified catalogues of products exhibited in the three first classes of natural objects will no doubt be perused with interest. These lists are of course given only for general information :

MINERAL SUBSTANCES.

CLASSIFICATION OF MINERAL SUBSTANCES SENT FROM CANADA, IN THE ORDER IN WHICH THEY ARE USED IN WORKS OF ART.

1. *Metals and their Ores.*

Oxidulated iron, from Marmora, Madoc, Sherbrooke, Crosby, Hull, Leeds and Portage du Fort. Specular Iron Ore, from McNab, Wallace and Lake Nipissing.

Bog Iron, from Houghton, Vaudreuil, St. Nicholas, Machiche, Point du Lac, St. Pierre, Cap de la Madeleine and St. Valier.

Titaniferous Iron, from Sutton and Brome.

Ilmenite, from Bay St. Paul and St. Urbain.

Blende, from Lake Superior.

Lead Ore, from Lake Superior, Gaspé, Ramsay, and Lansdown.

Copper Ore, from Lake Superior, Lake Huron and Inverness.

Native Copper, from Lake Superior.

Auro-argentiferous and Argentiferous Pyrites, from the Eastern Townships.

Nickel, from Lakes Huron and Superior, and Daillebout.

Silver, native, from Lake Superior.

Gold, native, from River du Loup, Fief St. Charles, Aubert de l'Isle, Etchemin,

Gold, native, from River Chaudière, River Famine and other neighboring places.

Platinum, from Fief St. Charles.

Iridosmine, from Fief St. Charles.

Auriferous Pyrites, from La Beauce.

Argentiferous Pyrites, from La Beauce.

Arsenical Pyrites, from La Beauce.

2. *Minerals requiring chemical operations to fit them for use.*

Uranic Ochre, From Madoc,

Chromic Iron, from Bolton and Ham.

Cobalt, from Lake Superior.

Wad, or Earthy Manganese, from Quebec

Iron Pyrites, from Lanoraye, Dautraye, and the Eastern Townships.
Molybdenite from Lake Superior and Somerville.
Dolomite, from Dalhousie, Blythfield, Sutton, Brome, Shipton, St. Sylvestre and Point Levy.
Magnesite, from Sutton and Bolton.

3. *Mineral paints.*

Iron Ochre, from Ste. Anne near Quebec, Cap de la Madeleine, Shipton, Pointe du Lac, and Rimouski.
Barytes, from Burgess and Lansdown.
Phosphate of Iron, from Vaudreuil.

4. *Materials applicable to the Fine Arts.*

Lithographic Stone, from Marmora.

5. *Materials applicable to Jewellery.*

Agates, from Lake Superior and the North Shore.
Labradorite, from Grenville.
Jasper, from Lake Huron.
Ribboned Chert, from Lake Superior.
Perthite, from Bathurst.
Rubies, from Burgess.

6. *Refractory Materials.*

Soap Stone (compact talc) from Bolton and Potton.
Mica, from Grenville.
Plumbago, from Grenville and Burgess.
White Sandstone, from St. Maurice.
Asbestus, from Dalhousie and Kamouraska.

7. *Mineral Manures.*

Phosphate of Lime, from Perth.
Gypsum, from Brantford and Oneida.
Shell Marl, from Ottawa, Sheffield, Montreal and Stanstead.

8. *Grinding and Polishing Materials.*

Whetstones, from Madoc, Eastern Townships.
Canadian Tripoli, from Laval.

9. *Materials employed in the construction of buildings.*

Slates, from the Eastern Townships.
White Granite, Hereford, Barnston, St. Joseph and Nicolet.

Pseudo-granite, from Nicolet and Lorette.
Sandstone, from Ramesay, Pembroke, and St. Maurice.
Calcareous Sandstone, from Lauzon and Chaudière.
Limestone, from Marmora, McNab, The Chats, Gloucester, Montreal, Packenham, and Caughnawaga.
Trap, from St. Roch.
Marble, from Oxford, Lake Brompton, Dudswell, Saint Armand, Saint Lin, McNab and Packenham.
Hydraulic Limestone, from Thorold, Quebec, Oneida, Nepean and Brantford.
Building Bricks, from divers places.

10. *Combustible Materials.*

Peat, from Longueuil and Sheffield.
Asphalt, from Enniskillen.

11. *Miscellaneous Minerals.*

Aerolite, found at Madoc, forming a mass of iron with 6.35 per cent. of Nickel, weighing 370 lbs.

CLASSIFICATION OF THE DIFFERENT VARIETIES OF CANADIAN WOODS, SPECIMENS OF WHICH FORM THE CANADIAN COLLECTION FOR THE PARIS EXHIBITION.

1. *Magnoliaceæ.*

White wood, so called in Canada, (Liriodendron tulipifera. Linn.)

2. *Teleaceæ.*

Lime, (Lilia Americana. Linn.

3. *Anacardiæ.*

Sumack, (Rhus Typhina. Linn.)

4. *Aceraceæ.*

Maple, (Acer Saccharinum. Linn.)
Red Maple " "
Waved Maple " "
Bird's Eye Maple " "
Plane, (Acer Dasycarpum. Ehrhart.)

5. *Amygdaleæ.*

Wild yellow plum. (Prunus Americana. Marshall.)
Red Cherry. (Cerasus Pennsylvanica. Loisel.)
Black cherry. (Cerasus serotina. De Candolle.)
Choke Cherry. (Cerasus Virginiana. De Candolle.)

6. *Cornaceæ.*

Cornel, flowering dogwood. (Cornus Florida. Linn.)

7. *Pomaceæ.*

Dotted or Apple Thorn. (Cratægus punctata. Jacquin.)
Red Thorn. (Cratægus coccinea. Linn.)
White Thorn. (Cratægus crus Galli. Linn.)
Mountain Ash. (Pyrus Americana. De Candolle.)
June or Service berry. (Amelanchier Canadensis. Torrey and Gray.)

8. *Fraxineæ.*

White Ash, (Fraxinus Americana. Linn.)
Black Ash, (Fraxinus Sambucifolia. Lambert.
Rock Ash, (Fraxinus Pubescens. Walter.)
Rim Ash, (Fraxinus Juglandifolia. Lambert.)

9. *Lauraceæ.*

Sassafras, (Sassafrac Officinale. Von Esenbeck.)

10. *Ulmaceæ.*

White Elm, (Ulmus Americana. Linn.)
Red or Slippery Elm, (Ulmus Fulva. Michaux.)
Rock Elm, (Ulmus Racemosa. Thomas.)
Gray Elm, (" " ")

11. *Juglandaceæ.*

Butternut, (Juglans Cinerea. Linn.)
Black Walnut, (Juglans Nigra. Linn.)
Soft Walnut.
Shell bark Hickory, (Carya Alba. Nuttal.)
Smooth bark Hickory, (" Tormentosa. Nuttal.)
Pignut, (" Glabra. Torney.)
Butternut, (" Amara. Nuttal.)

12. *Cupulifereæ.*

White Oak, (Quercus Alba. Linn.)
Swamp White Oak, (" Bicolor. Wild.)
Red Oak, (" Rubra. Linn.)
Black Oak, (" Nigra. Linn.)
Chesnut, (Castanea Vesca. Linn.)
White Beech, (Fagus Ferruginea. Aiton.)
Blue Beech, Horn-Beam, (Carpinus Americana. Michaux.)
Iron Wood, (Ostrya Virginica. Willd.)

13. *Betulaceæ.*

Paper or Canoe Birch, (Betula Papyracea. Aiton.)
Yellow Birch, (" Excelsa. Aiton.)
Cherry Birch, (" Lenta. Linn.)
Black Birch, (" Nigra. Linn.)
Alder, (Alnus Incana. Willd.)

14. *Saliaceæ.*

Black Willow, (Salix Nigra. Marshall.)
Aspen Poplar, (Populus Tremuloïdes. Michaux.)
Large-toothed Aspen, (" Grandidentata. Michaux.)
Balm of Gilead, (" Balsamifera. Linn.)
Cotton Wood, Necklace Poplar, Populus Monilifera. Aiton.)

15. *Plantanaceæ.*

Button-Wood, American Sycamose, (Plantanus Occidentalis. Linn.)

16. *Conifereæ.*

Pitch Pine, (Pinus Rigida. Miller.)
Red Pine, (" Resinosa. Aiton.)
Yellow Pine, (" Mitis. Michaux.)
White or Weymouth Pine, (Pinus Strobus. Linn.)
Balsam Fir, (Abies Balsamea. Marshall.)
Hemlock Spruce, (" Canadensis. Michaux.)
White Spruce, (" Alba. Michaux.)
Black Spruce, (" Nigra. Poiret.)
American Larch, Tamarack, (Larix Americana. Michaux.)
White Cedar, (Thuya Occidentalis. Linn.)
Red Cedar, Savin, (Juniperus Virginiana. Linn.)

LIST OF VEGETABLES AND FRUITS OF WHICH DRAWINGS AND MODELS IN WAX, TAKEN FROM NATURE, WERE EXHIBITED.

VEGETABLES.

1.

Family of the Cruciferæ, class Brassicæ.

Brassica.

Turnips, 6 varieties.

2.

Family of the Umbelliferæ, class Dancinæ.

Dancus.

Carrots, 8 varieties.

3.

Family of the Chenopodeæ, class Cyclolobeæ.

Betta.

Beets, 9 varieties.

4.

Family of the Liliaciæ, class Hyacinthenæ.

Alium Sativum.

Onions, 6 varieties.

5.

Family of the Cruciferæ, class Raphanæ.

Raphanus.

Radishes, 7 varieties.

6.

Family of the Umbelliferæ, class Pencedaneæ.

Pastinaca.

Parsnips, 3 varieties.

FRUITS.

1.

Family of the Rosaceæ, class Pomaceæ.

Malus.

Apples.
- Fameuses, 4 varieties.
- Rennets, 5 varieties.
- Grises, 6 varieties.
- Other varieties, 63.

2.

Family of the Rosaceæ, class Amydaleæ.

Prunus.

Plums, 36 varieties.
Family of the Cucurbitaceæ, class Cucurbiteæ.

Cucurbis Melo.

Melons, 7 varieties.

The collection of grain and cereals included all the varieties of these plants which are cultivated in the country.

The reports hereto annexed, of the Commissioners appointed to represent Canada in Paris, complete the general report of all the proceedings connected with the Canadian Exhibition.

The Executive Council flatter themselves that they are enabled to bring their labors to a termination, with the consoling reflection that the most complete success has crowned the undertaking, for the due carrying out of which, the country has manifested such earnest solicitude.

W. RHODES,
Chairman.

J. C. TACHÉ,
Secretary.

Toronto, 21st April, 1856.

REPORT

OF

J. C. TACHÉ, ESQ.,

CANADIAN COMMISSIONER TO PARIS

IN 1855.

REPORT OF J. C. TACHÉ, ESQUIRE,

CANADIAN COMMISSIONER TO PARIS.

[*Translation.*]

The duties which devolved upon the Special Commissioners appointed to superintend the Canadian Department at the Great Exhibition in Paris, were of two kinds: the Commissioners had to direct the arrangement of the articles forwarded for exhibition, to place them in positions in which they might be seen to advantage, to see that due care was taken as regarded their preservation, and to be present at the office of the section to answer such questions as might be put to them by casual visitors; on the other hand, the Commissioners had a duty at least equal in importance to discharge, viz.: to use every endeavor to diffuse throughout Europe, correct information respecting Canada, and to render the success which crowned our exhibition as notorious as possible. It will at once be evident, that to have exhibited collections of articles to the mere passing gaze of visitors, would only have been to aim at transient effect, to seek only a momentary repute. It became then of absolute importance to perpetuate the remembrance of the Canadian exhibition, and to make known to the world such information as would be calculated to advance the progress of emigration, commerce, and industrial pursuits. Another duty falling within the office of the Commissioner was, to transmit to the people of Canada, from time to time, information in regard to events which might occur at the place of exhibition, and to enable the Canadian public to derive profit to as great an extent as they had reason to expect, by the grand lessons which science, agriculture, arts and commerce might draw from the occasion so far as they were applicable to the interests of the country.

It was at once apparent to the two Special Commissioners, Sir William Logan and myself, that these different duties so distinct in their nature, differing so essentially the one from the other, could only be satisfactorily performed by each Commissioner assuming his own distinct share of the task. Sir William Logan, therefore, undertook the arrangement of the exhibition and the other duties attaching to that part of the work, aided in his labors by the two curators of the articles, Messrs. Romain and Perry, whilst I assumed that part of the work having reference to the diffusion of information throughout both Europe and Canada.

Sir William Logan has sent in to the Committee his report touching the share of the duties which devolved upon him, together with lists shewing the manner in which the articles have been disposed of, in conformity with the instructions which he received, and the opinion of many of the Honorary Commissioners then present in Paris; the whole forms part of the general report.

It becomes my duty, then, to render an account of the manner in which that portion of the duties of the Commissioners which fell more particularly to my share, has been fulfilled. In the first paragraph of this report, I divided the duties incumbent upon me into two parts, namely, to spread abroad information in relation to matters connected with the Exhibition, so far as they bore any relation whatever to the interests of Canada; and secondly, to enable the people of Canada by means of the public press, to profit by the grand lessons to be derived from the universal assemblage of the sciences, arts and manufactures.

The Executive Committee shewed that they gave due consideration to the importance of affording the most ample public information respecting Canadian matters, when they invited Canadian writers to compete for three prizes offered for the three best essays, written with the object of diffusing throughout Europe, information calculated to attract emigration and commerce to our country.

Of the prize essays, the one of which I am the author and which is entitled, *Esquisse sur le Canada consideré sous le point de vue economiste* was forwarded to me to Paris, to be published under my direction. This pamphlet, a copy of which I append to this report, was circulated during the months of July and August, unfortunately the other essays which were published in Canada, were only received in France in the course of the month of November, when the Exhibition was on the point of being finally closed.

The Commissioners, in addition to the above essay, ordered the publication of a work entitled *Esquisse Geologique sur le Canada*, by Mr. Sterry Hunt, Chemist and Mineralogist to the Geological Commission, which pamphlet being a *resumé* of the labors of Sir William Logan and his assistants Messrs. Hunt and Murray, was admirably calculated to afford to the world an idea of the mineral wealth of Canada; a copy of this little work, to which is annexed a reduction of Sir William Logan's chart, accompanies this report; I have also annexed to this report a copy of another pamphlet, published in Paris by myself, entitled, *Catalogue raisonné des produits Canadiens exposés à Paris en* 1855. The object of this work was to perpetuate the remembrance in Europe of our exhibition, and to serve as a sequel to the information on the subject con-

tained in other publications. In addition to the information above referred to, I considered that it was also of the greatest importance to draw the attention of the public press to Canada and her productions. For this purpose I furnished several French journalists, with the data they would find necessary, in the preparation of articles calculated to give to our exhibition the consequence and popularity necessary to its complete success. I do not hesitate to affirm, for the fact is of public notoriety, that estimating its importance by its population, Canada has, comparatively speaking, attracted a larger share of public attention than any other country, not only in France but in the United Kingdom, in Germany, Switzerland and Belgium. "*Now we can form an estimate of the value of those few arpents* "*of snow ceded to England with such culpable carelessness by the Govern-* "*ment of Louis* XV.," says Count Jaubert at the word CANADA, in his work entitled, *La Botanique à l'exposition universelle de* 1855.

Success the most complete has crowned the efforts made by the country in connection with the Universal Exhibition; this success is evidenced by the report of the International Jury, and in all the works specially published for the occasion;—so much may be said for our success in the opinion of learned men. With respect to the success obtained in popular opinion, that has with one consent been proclaimed by the whole press of Europe, and has, moreover, been permanently recorded in two great works, destined forever to preserve in the minds of an educated people the remembrance of the Great Exhibition in Paris, viz.: in the History of the Universal Exhibition, by Mr. Charles Robin, and in the Album of the Exhibition published at the office of the *Abeille Imperiale.*

The chapter under the title CANADA in the history of the Universal Exhibition begins with these words: "The efforts made by Canada, that old "French Colony, to make a suitable appearance at the Great Exhibition "of 1855, efforts which have resulted, moreover, in the most complete "success, coupled with the undoubted importance of that fine country, "whose future cannot be otherwise than brilliant, render it a duty on our "part to devote to it a distinct chapter."

The most beneficial results must inevitably arise from this knowledge conveyed to the whole of Europe of the resources of our beautiful country, from this popularity, created in the minds of all the transatlantic nations, from this interest every where inspired with respect to the affairs of Canada. It would necessarily be difficult if not impossible, to predict what will be the results as regards commerce and emigration; all that will, in a great measure, depend upon the energy of our leading merchants, and to a certain extent also, upon the action of the Legislature, with respect to its enactments in relation to the sale and settlement of the public lands, to the improvements to be effected in our fine communica-

tion by the River St. Lawrence, and to the regulation of our Tariff of Customs Duties. There is no doubt, however, that the attention of Europe is now directed to Canada, and out of the thousand facts which go to prove this assertion, I will content myself with saying, that it is mainly due to the popularity in Europe of the productions of our forests, that the Imperial decree was framed, which reduces to a mere nominal duty the enormous impost which heretofore debarred the importation into France, of timber or vessels of foreign build. The eyes of European commerce have been opened to the immense natural resources of the beautiful country which we inhabit. Speaking of the Exhibition generally, the London Times, in an article almost exclusively devoted to Canadian productions, amongst other things remarks: "We may certainly hope "to place Canada on a footing to enter into competition in our markets "with Sweden, for the production of the best iron manufactured with wood "charcoal." The remainder of the article had for its object to shew that we ought more particularly to turn our attention to the exportation of the natural productions of the country, or of those in the first stage of manufacture.

There is, moreover, no doubt that the success of our exhibition will be the means of attracting to our shores an emigration from the continent of Europe, and in proof of this result I may be permitted to quote a passage from a letter written to me in October last, from Darmstadt, by Baron Wedekind, Chief Ranger of the Duchy of Hesse, and compiler of the records of the German forests: "In conclusion," says this eminent per- "sonage, I congratulate you upon your Canada. Although the feeling in "favor of emigration has very much diminished in Germany, I would re- "commend Canada to the emigrant, in preference to any other country."

I think it may, with justice be asserted, that the object of the Exhibition has so far been completely attained; to derive from it at a more remote period the greatest possible profit, becomes the duty of the people of Canada, each one to the extent indicated and entailed upon him by the position which he holds.

I have before stated that it was part of my duty to inform the People of Canada, from time to time,* of all the principal circumstances which occurred at Paris, during and in connection with the Exhibition.

For this purpose I transmitted a regular correspondence, comprising a rapid sketch of the Exhibition from two different points of view, namely, a comprehensive review of the Palace of Industry and its annexes, a vocabulary, in fact, given in the form of a ramble through the Exhibition, the other is an examination, of necessity limited to the extent of time and space, and the amount of information at my disposal, comprehending, however, an examination of the branches of industry represented at Paris,

class by class, according to the system of classification adopted by the Imperial Commission. These letters, forty-eight in number, published in the Canadian newspapers are annexed as appendices to this report.

Although the remark made by Sir William Logan in his report is absolutely true, namely, that it is impossible to give a list which would be mathematically correct, more particularly if commentary be attempted, of all the prizes awarded, before the publication of the final report of the International Jury; we may, however, make use of the figures contained in the list of prizes published by order of the Imperial Commission to give a comparative view; the final report cannot differ in any essential particular from the preliminary report, which was made with great care, and which was made use of in the distribution of the medals.

From the lists here mentioned, it appears that Canada has carried off 93 prizes, among which we find one grand medal of honor, one medal of honor, thirteen silver (first class) medals, thirty bronze (second class) medals, and forty-eight "honorable mentions." To enable the reader to judge of the aggregate as well as the comparative amount of success obtained in the several universal exhibitions in which Canada has entered the lists as a competitor, as marked by the number of prizes received, I here shew the total numbers of said prizes awarded at the Exhibitions of London, New York and Paris.

They are as follows:

At London, 67 medals and "honorable mentions."
At New York, 63 " " "
At Paris, 93 " " "

The errors induced by the discrepancies of the various reports cannot, in any serious degree, affect the comparative proportion here shewn. I should not omit to remark that Canada is the single instance of a colony having obtained a grand medal of honor; that the medal of honor was awarded for the collection of woods and grain of Canada, and that the contributions to the three classes forming the group of natural products, were derived from a large number of localities, widely scattered, and situated in the most remote as well as the conterminous parts of Upper and Lower Canada: a striking proof that our country, throughout its whole extent, is productive, and that its productions are of a high degree of excellence.

It is incumbent on me to make especial reference to a machine, concerning which the Committee always evinced the highest interest, and for the success of which they made a comparatively large appropriation. It will be at once understood that I mean Mr. Romain's steam cultivator. This machine, to which the inventor had devoted his life, and his very uncommon mechanical talents, was transmitted to Paris in an unfinished

state, and he devoted to it several months of incessant labor before he was able to make the first trial of it. This trial took place privately, and in my presence; it was finally successful as far as the principal mechanism was concerned; but the period of time during which it continued to act, did not exceed a few minutes, in consequence of a faulty mode of application in the construction of the boiler. Several engineers, and some agriculturists of distinction, were admitted to witness the trials, and all with whom I conversed were of opinion that the principle of the machine was good, and that it contained the solution of the problem of the steam plough; the fault lay, in their opinion, in a simple matter of detail. M. Coré, a French mechanician, the author of a History of Mechanics in the 19th century, speaking on this subject at the special agricultural banquet, given at Paris, 25th October, 1855, expressed himself in these words: "I feel a "high degree of satisfaction, which you, gentlemen, will all share with me, "in learning that the problem of the application of steam to the plough has "been completely solved by a Canadian mechanician, who is proud of his "French descent. I lately saw this important machine at work, this plough "of which steam was the motive power, and the experiment was such as "to leave little to be desired to ensure its perfection."

In consequence of the reports which prevailed of the experiments which were thus made beyond the jurisdiction of the jury of the Exhibition, the English house of Croskill sent agents to Paris to offer to purchase his invention from Mr. Romain on terms which the inventor considered as highly advantageous to himself, and likely to promote the ultimate success of the undertaking to which he had devoted his life. The house of Croskill stipulated that the machine should be withdrawn from the exhibition. On the application of the inventor, and having consulted both French and English engineers on the subject, Sir William Logan and I thought it our duty to enable Mr. Romain to avail himself of proposals which he, the person principally interested, thought the most likely to effect the entire success of his invention. In the contract which was entered into between Mr. Romain and the house of Croskill, or rather their successors in that house, the machine is designated as *Romain's Canadian Steam Cultivator.* Referring for all details on the several subjects which I have here touched upon, and to the various appendices subjoined to this report, it now only remains that I should render an account of the funds which were placed at my disposal as Commissioner at Paris. My accounts at full length having been examined by the Auditor of public accounts, and compared with the vouchers annexed to them, have been found correct; I here present a statement.

General statement of monies received and expended by me, as Commissioner at the Paris Exhibition, (in sterling.)

Dr.	£	s.	d.	Cr.	£	s.	d.
February 1, 1856.							
To cash from Executive Committee ...	160	0	0	By travelling expenses and outfit	152	10	0
To cash from Messrs. Mallet, of Paris.	2870	0	0	By Wm. Chapman, of London...............	136	13	0
To cash from Messrs. Glynn & Co., of of London	730	0	0	By Stamp for the same........................	0	15	0
To cash from M. Potaux, of Liege	60	0	0	By this amount paid to Sir William Logan..	1360	0	0
To cash from Messrs. Cunard	6	13	6	By Mr. Romain, for salary from 1st April to 16th December, and to reimburse his outlay as a custodian	451	0	0
To this value remaining in my possession in travelling equipage, &c......	25	0	0	By other expenses of freight, arrangement of goods, printing, &c.............	853	10	0
				By personal expenses of all kinds, and other disbursements........................	279	0	0
				By balance deposited in the Bank of Montreal	592	12	0
				By balance cash in hand.......................	25	13	6
£	3851	13	6	£	3851	13	6

It appears by the above statement that of the sum of £3851 13s. 6d. sterling there remains to the credit of the Committee a balance of six hundred and eighteen pounds five shillings and six pence sterling, which I have repaid to the Executive Committee Fund partly by deposit in the Bank of Montreal, partly in payment of appropriations made by the Committee.

I cannot conclude these few lines without a word in reference to the assertion made by a portion of the press in the United States amounting to a charge that the machines exhibited by Canada, were, for the most part, surreptitious imitations of American inventions; I deny the truth of this insinuation most emphatically. Two or three implements of agriculture improved, not invented, by citizens of the United States, and now become public property, are indeed exhibited, not as Canadian inventions, but as specimens of workmanship. This was perfectly fair, inasmuch as similar implements were to be seen in the departments of almost all the nations who were represented in the Exhibition.

If the journalists who have presumed to make this charge had taken counsel with the Commissioners of their nation, with whom we were at all times on the best terms, and to whose kindness we were indebted for a part of the space allotted to us in the annexe near the river, they would have received convincing assurance that the success obtained by Canada at Paris, was due only to the intrinsic merit of the products which she exhibited. These few remarks will carry conviction to the least candid minds. Moreover it is but right to admit that some journals in the

United States were induced, by a sense of justice and good faith, to confute these charges, and to call upon their authors to produce proofs of their truth.

J. C. TACHÉ,
Commissioner for Canada.

Rimouski, 15th Feb., 1856.

PAMPHLET,

PUBLISHED AT PARIS,

BY

J. C. TACHÉ, Esq.

SKETCH OF CANADA,

ITS INDUSTRIAL CONDITION AND RESOURCES:

BY J. C. TACHÉ,

MEMBER OF THE PARLIAMENT OF CANADA, AND COMMISSIONER FOR CANADA TO THE UNIVERSAL EXHIBITION, A. D. 1855.

Published by order of the Executive Committee in charge of the Canadian Exhibition in Session at Quebec.

TRANSLATED FROM THE FRENCH.

PARIS:
HECTOR BOSSANGE & SONS,
QUAI VOLTAIRE, 25.
1855.
E

EXPLANATION

OF

THE FIGURES ON THE GEOGRAPHICAL MAP

ANNEXED TO THIS VOLUME.

In order not to crowd the annexed map with names, which would only destroy its utility as an index to the different waters distributed through the valley of the Saint Lawrence, the position of the various Counties has been indicated by figures, as follows:

1. County of Gaspé.
2. — Bonaventure.
3. — Rimouski.
4. — Témiscouata.
5. — Saguenay.
6. — Kamouraska.
7. — Chicoutimi.
8. — Charlevoix.
9. — Montmorenci.
10. — L'Ilet.
11. — Montmagny.
12. — Bellechasse.
13. — Québec.
14. — Lévis.
15. — Dorchester.
16. — Beauce.
17. — Portneuf.
18. — Lotbinière.
19. — Mégantic.
20. — Nicolet.
21. — Yamaska.
22. — Drummond.
23. — Arthabaska.
24. — Champlain.
25. — Saint-Maurice.
26. — Maskinongé.
27. — Wolfe.
28. — Compton.
29. — Sherbrooke.
30. — Stanstead.
31. — Verchères.
32. — Chambly.
33. — Saint-Jean.
34. — Napierville.
35. — Richelieu.
36. — Saint-Hyacinth.
37. — Rouville,
38. — Iberville.
39. — Bagot.
40. — Shefford.
41. — Missisquoi.
42. — Berthier.
43. — Assomption.
44. — Joliette.
45. — Montcalm.
46. — Monteral.
47. — Laval.
48. — Terrebonne.
49. — Two Mountains.
50. — Laprairie.
51. — Chateauguay.
52. — Argenteuil.
53. — Vaudreuil.
54. — Ottawa.
55. — Pontiac.
56. — Prescott.
57. — Russell.
58. — Carleton.
59. — Renfrew.
60. — Lanark.
61. — Beauharnois.
62. — Huntingdon.
63. — Soulanges.
64. — Glengarry.
65. — Stormont.
66. — Dundas.
67. — Grenville.
68. — Leeds.
69. — Frontenac.
70. — Lennox.
71. — Addington.
72. — Prince-Edward.
73. — Hastings.
74. — Northumberland.
75. — Durham.
76. — Peterborough.
77. — Victoria.
78. — Ontario.
79. — York.
80. — Peel.
81. — Simcoe.
82. — Halton.
83. — Wentworth.
84. — Brant.
85. — Wellington.
86. — Waterloo.
87. — Perth.
88. — Lincoln.
89. — Welland.
90. — Haldimand.
91. — Norfolk.
92. — Elgin.
93. — Midlesex.
94. — Oxford.
95. — Kent.
96. — Essex.
97. — Lambton.
98. — Huron.
99. — Bruce.
100. — Grey.

SKETCH

OF

CANADA,

ITS

INDUSTRIAL CONDITION AND RESOURCES.

PREFACE.

The object of this sketch is to combine within the smallest possible limits, the most valuable information on the past and present condition of Canada, to enable the reader to judge of the future prospects of this fine Colony.

Numerous works exist relating to the History, the Commerce, and the social and political position of Canada; but they are all either too voluminous, or intended to elucidate some one particular subject,—many of them are so crowded with figures, that the perusal of them is out of the question, except to persons seeking complete information upon the general statistics of the country.

Every effort has been made to compress, in this pamphlet, all that can interest the public, within limits which may render the work acceptable to the general reader.

Nothing is more difficult than to say much in a few words; it would be impossible to give a detail of all objects of interest in Canada, even in a work of ten times the length of this. Convinced of this, the author has simply confined himself to pourtraying the main features and characteristics of his country, and has only endeavoured to delineate them with perfect truth.

The reader must bear in mind that this little volume is meant for "the million;" accordingly, the man of letters will find in it but a small amount of literature; the tourist, little of the picturesque; the philosopher, but

little science ; the political economist, perhaps, too few figures ; still, all may derive from it some knowledge which they do not already possess ; and if the vast number of persons throughout Europe, who have been taught that Canada is the perpetual abode of ice and snow, can be convinced of their error, the aim of the author will have been attained, and something will have been done towards pointing out to the super-abundant population of Europe, a country where the emigrant may find a *home,* and a free and wide field for his industry, under the protection of wise and liberal institutions, which allow to all, the peaceful enjoyment of their affections and their traditionary modes of existence.

I.

PRELIMINARY REMARKS.

Importance of Canada.—Boundaries, extent and position of the Country.—Parts inhabited.—Navigable Waters.—Tides in the River Saint Lawrence.—Natural wealth.—Improvement since 1760.—Arrangement and intention of this work.

Canada has undergone great changes since the period when France consoled itself for the loss of this immense territory, by exclaiming,—"after all, what signify a few acres of snow in Canada?" Now, in 1855, these acres of snow have become a country covering a space of 360,000 square miles, inhabited by 2,000,000 of people; the annual products of its fertile soil, exceeding in value £25,000,000, independent of the wealth of its forests and the riches contained in its unrivalled fisheries; its trade employs an ocean fleet of more than a million of tons burden, and a flotilla on the lakes and rivers of upwards of two hundred thousand tons. Its Government is nearly independent, with a revenue of one million sterling, and it possesses educational and charitable institutions, worthy of the most highly favored countries in the world.

Bounded on the north and west by the immense tract known as the "King's Posts" or the "Hudson's Bay Company's" territory, on the south and east by the Gulf of St. Lawrence, the Province of New Brunswick and the United States; Canada assumes the form of a parallelogram, its length extending from the north-east towards the south-west.

Its whole length in round numbers is 1200 miles, its breadth about 300. The limits of the country, taking it lengthwise, extend from the 60th to the 84th degree of west longitude, and from the 42nd to the 52nd parallel of latitude.

Here as in other countries the Isothermal zones are not regulated by the parallels of latitude, and with the exception of that part of the western Peninsula, in the immediate neighbourhood of Lake Erie, at the extremity of Upper Canada, which is the hottest part of the country, and the coast of Labrador, the northern extremity of Lower Canada, which is by far the coldest, the slight difference of climate affects only the production of some delicate fruits, the ordinary objects of agricultural labour, not at all.

The inhabited part of this vast country contains an area of no more than about 36,000 miles, the remainder is the property of the province, and still exists in its primitive state as a forest, affording timber for building, of which great quantities are annually exported for the markets of Europe and America.

No country in the world is so well watered by fine rivers as Canada, intersected as it is by the River St. Lawrence through its entire length. This river is navigable for the largest vessels up to Quebec, 450 miles from its mouth, and for vessels of 600 tons as far as Montreal; sixty leagues higher up, it bears on its bosom large steamers and sailing vessels of from 200 to 300 tons burthen.

The tide is perceptible as far up as Three Rivers, ninety miles above Quebec; in the harbour of Quebec the highest tides rise to 20 feet, ordinary tides to about 12 feet, it being found that from this port to the gulf, this river is subject to the same influences as the open sea.

The natural productions of Canada are as various as its surface is extensive; the most useful kinds of woods exist in abundance from one extremity of the country to the other, minerals, even gold, are found, also, copper and iron, the forests are inhabited by wild animals affording the most valuable furs, and the Gulf of St. Lawrence boasts of the finest fisheries in the world,

The soil is almost every where proverbial for its fertility, and the explorations that are constantly made, prove that the land is good even in localities where it was supposed to be the reverse.

Canada thus specially favoured by Providence has advanced at a firm and steady pace in the march of improvement; its population which in 1760, amounted only to some sixty odd thousand, has in less than a century increased thirty-fold. A proportionate amount of land has also been cleared for cultivation, roads, and other means of communication (in some respects unequaled in the world) have been opened to commerce, and education has kept pace with the progress of agriculture and the industrial arts. As a natural consequence, the political and civil institutions have advanced under the fostering influence of an enlightened liberty.

Canada has its deficiencies, no doubt, as well as all other countries, and, as elsewhere, all is not perfection; the lower orders have their periods of trial, but taking the things of this world at their true value, and men for what they appear to be worth here as elsewhere, there are few countries where one can live better than in Canada, no matter to what part of it we may turn.

Not to trouble the reader with a mass of details on a variety of subjects, and to allow every one to study that subject which interests him most, the author has divided this sketch into several chapters, each under a special

heading and containing the information relating to some particular feature of the country. As it is in the first place especially necessary to give some idea of its geography, the succeeding chapter is intended to make the reader familiar with those territorial divisions, an acquaintance with which is essential to a clear comprehension of the history and the other data which form the subject of this work. This is succeeded by a hasty outline of the history of Canada, a brief description of the geological configuration of the country as far as it relates to industrial pursuits, some hints on the climate and meteorology, and on the natural productions and the benefit derived from them. Trade and statistics generally are not forgotten in this picture, together with the means of transport and the improvements made in this branch. One chapter is specially devoted to give the reader clear and correct ideas of our social and political organization.

The author is well convinced of the difficulty of comprising so much valuable matter in so small a space, but it is absolutely necessary; it is the only form in which information can be made palatable to the people; it is in fact the only method of reaching all classes of society. This treatise is not a literary production: this will be at once perceived by the educated reader; it is a picture of things as they are, to enlighten for practical purposes; if it is not this, it is nothing at all.

The object is, to make Canada known to the world, for this purpose we must have a book which all the world will read; the man of education without weariness, the man of limited education without the fear of misunderstanding it; it must be a book which you can carry in your great-coat pocket, or in your travelling portfolio, to read it on board a steamboat, or in a railway carriage, when the hurry of business gives you leisure; it must be at the same time a book which the artisan may carry home and read at his leisure after the labors of the day.

The author has done his utmost to be clear and precise, and above all truthful. All the information contained in figures in the different chapters, is in round numbers, but still so near the exact truth, that by the end of this year, 1855, they will be exceeded in reality. The figures in the chapter of statistics are the true numbers, extracted from official documents collected and published.

A small map of Canada is placed at the end of the volume: this, containing few details, is only intended to give the reader an idea of the topographical configuration of the country, and of the principal great territorial divisions.

II.

GEOGRAPHICAL DATA.

Division of Lower and Upper Canada, or Canada French and Canada English.—Difference between the two Sections.—Territorial divisions.—Geographical description of the two Countries.—The Gulf and its Islands.—Labrador.—North Coast.—Gaspé.—Districts and Counties.—The Saguenay.—Lake St. John.—South coast.—Quebec.—Three Rivers.—Saint Maurice.—The St. Francis.—The Richelieu.—Montreal.—The Ottawa.—Bytown or Ottawa City.—Rapids.—Brockville.—The Thousand Islands.—Ontario.—Kingston, River Trent.—Toronto.—Lake Simcoe.—Hamilton.—Niagara.—Lake Erie.—River Detroit.—Lake St. Clair.—The Thames.—Lake Huron.—Fishing and Mining Stations on Lake Superior.

Although Canada at present consists of but one single Province, it is nevertheless divided into two sections widely different from one another. Upper and Lower Canada, or Canada West, and Canada East. The latter extends from the Gulf to the River Ottawa, on the north of the St. Lawrence, and to the point of intersection of the 45th parallel with the river on the south. This section enjoys all the ocean navigation of the Colony, the other, Upper Canada, extending towards the west and south-west includes within its limits, the navigation of the great Lakes Ontario, Erie, Huron and Superior.

The area of Lower Canada is much greater than that of Upper Canada, but from Lower Canada which is about six times as large as the other section, must be deducted about one quarter; which, being situated along the coast of Labrador and behind it, will never serve any other purposes than those of the huntsman and the lumberer; all the rest is suitable for cultivation with the exception of a few of those sterile tracts which are to be met with in most countries.

Lower and Upper Canada offer as great a contrast in the manners and social habits of the people, as they exhibit in their laws and geographical situation. The former is chiefly inhabited by French or Franco-Canadians, the latter almost exclusively by people of British origin; in Lower Canada an immense majority belong to the Catholic religion, in Upper Canada the largest number belong to the different denominations of Protestants. The English laws prevail exclusively in Upper Canada; the old French Civil law constitutes the sole code in Lower Canada.

The territory is divided into Districts, Counties, divisions and Unions of Counties for judicial and political purposes; the Counties are again sub-

divided into Townships in Upper, and into Parishes and Townships in Lower Canada. There are thirty judicial districts in the former and seven in the latter; there are fifty-eight Counties in Lower Canada, forty-two in Upper; these Counties have also their electoral sub-divisions, which it is not necessary to describe here, as the number of electoral colleges will be duly enumerated hereafter.

We will now enter on the plan which we propose to follow; to make the reader acquainted with a little of the geography of the country, we shall take the route which nature herself points out to us, by ascending the stream of the Saint Lawrence, which passes through our territory as its main artery, and follow the northern shore of the great lakes through part of Upper Canada.

Let us first notice the Magdalen Islands in the middle of the Gulf of St. Lawrence; the principal Islands of the group being seven in number. They form part of the Province of Canada, and derive their importance from the fact of their being a good rendezvous for those engaged in the fisheries, who find in these waters, cod, herring, mackerel, seals and whales. The Gulf of St. Lawrence from north to south, from the coast of Nova Scotia, to that of Labrador, is upwards of three hundred miles in width.

At the Western extremity of the Gulf and at the mouth of the River St. Lawrence, is situated about midway, the Island of Anticosti, one hundred and thirty-five miles in length, and thirty-six miles wide at its broadest part.

This Island is not only a station for hunting and fishing, it contains also some land capable of cultivation; at present there are but five houses on it, two lofty light houses, for the benefit of navigation, two depots of provisions in case of shipwrecks, and a permanent fishing and hunting establishment. On the north of Anticosti is the coast of Labrador, which is extremely sterile, but its rivers abound with the finest salmon and its shores are frequented by all kinds of salt water fish, which are taken in great quantities at the different fishing stations established there.

To the south of Anticosti, on the left hand, ascending the St. Lawrence, is the district of Gaspé, comprising the Counties of Bonaventure and Gaspé. Here the soil is excellent; the people of this locality are employed in agricultural pursuits, in the getting out of timber, and more especially in cod-fishing. Only a small part of this district is settled; but the population is increasing very rapidly.

The north shore, on the right hand, facing the Gaspé coast, only presents to notice a few hunting and fishing establishments. The land, for a certain distance, ascending the river, is scarcely fit for cultivation, being broken and rocky; it however abounds with good timber, of excellent quality—well adapted for exportation.

The mean breadth of the St. Lawrence at this point, is about sixty miles, it narrows very suddenly at the Pointe des Monts on the north shore; upon this point, which projects a considerable distance from the land, a light-house is erected.

The north coast and the coasts of Gaspé are watered by a great number of streams abounding in fish; and which float or are capable of floating large quantities of timber, of which there is a good supply; there are also on both sides, good harbours for shipping; among which, that of the Seven Islands is most remarkable. At the western extremity of Gaspé, may be seen, at a distance of about twenty-four miles in the interior, the Chicchack, or Notre Dame Mountains, the highest in Canada, being about 4,000 feet above the level of the sea; they form part of the chain of the Alleghanies, or Apalachian range.

On the south shore, we have the County of Rimouski, then Temiscouata, the large populations of both of which are exclusively engaged in agricultural pursuits—a part of them, however, are occasionally employed in getting out timber for the European market. On the north, is the new County of Saguenay, the few inhabitants of which are exclusively engaged in lumbering.

On the left, is the County of Kamouraska, which, with that of Temiscouata and Rimouski, form the District of Kamouraska, included within that magnificent range of settlements which lie along the shores of the St. Lawrence, known and celebrated in the country as the Côte du Sud.

On the north shore, opposite Temiscouata, and forming the boundary between the Counties of Saguenay and Charlevoix, is the River Saguenay, the great tributary of the St. Lawrence, the wild and majestic scenery of which is without a parallel. From its mouth, at Tadousac, to Ha! Ha! Bay, in the interior, for about fifty-four miles of its course, its average breadth is a mile, and its depth one hundred fathoms. In this distance, it receives the waters of several tributary rivers, and with the exception of a few bays forming the mouth of these rivers, its banks are formed by mountains of fantastic outline, in some places, 1,500 feet high, their faces descending almost perpendicularly to the water's edge, and over which flow slender streams of water from the table lands at their summits.

From Ha! Ha! Bay to Chicoutimi, the Saguenay scarcely varies in breadth, but its depth at low water does not exceed 10 feet, the ebb and flow of the tides are perceptible as high up as the rapids, seventy-eight miles from the St. Lawrence, the flood tides reaching about the height of 10 feet. From that point, the Saguenay receives the waters of Lake Kenogami, and discharges itself from Lake St. John, by two outlets formed by an island in their centre. Lake St. John, twenty-four miles long, and about the same in breadth, is the great basin of the Saguenay;

into it, innumerable rivers empty themselves. The lands in the vicinity of the Upper Saguenay, which form the County of Chicoutimi, have been rapidly settled within the last few years. Upwards of sixty sea-going shi s and a large number of schooners annually ascend the Saguenay to bring down the timber prepared there for the home and foreign markets.

An Indian tribe, the Montagnais, the most numerous in Canada, at present inhabit the Counties of Saguenay and Chicoutimi, and bring great quantities of valuable furs to the foreign market.

Returning to the St. Lawrence above the mouth of the Saguenay, we have on the north shore, the Counties of Charlevoix and Montmorenci, and on the south, the Counties of L'Islet, Montmagny, and Bellechasse.

The St. Lawrence, which, from the Pointe des Monts to Kamouraska, varies in breadth from eighteen to thirty-six miles, does not here exceed twelve miles, and its waters begin to change gradually from salt to fresh. Opposite the last named Counties, and forming part of them, lies a group of lovely islands, of most picturesque appearance; they are called, Ile aux Coudres, Goose Island, Crane Island, Grosse Isle, and Madame Island; and lastly, the splendid Island of Orleans, twenty-one miles long, and comprehending five Parishes, which form part of the County of Montmorenci.

After passing the Island of Orleans, we enter the roadstead of Quebec, within which is situated the present Capital of Canada, on the site where Champlain first laid its foundation; its port is large enough to contain thousands of ships, its wharves, extending 50 feet into the river; and its citadel is one of the strongest in the world. Quebec is built partly on the bank of the river and partly on the promontory called Cape Diamond; it is bounded on one side by the waters of the St. Lawrence, and by the pretty River St. Charles on the other, and is situated in the midst of the most lovely scenery in all America.

The reader will find in another chapter, statistics relative to the different towns and divisions of Canada, all of which are advancing with rapid strides in the march of improvement.

On the right, to the north of the city, is the County of Quebec; on the left, on the south bank of the river, are the Counties of Levis, Dorchester and Beauce, the two last being in the interior. The river above Quebec, becomes very contracted, varying from one mile to four in breadth: a few miles higher up, it has a depth of only about 14 feet on the shoals. Leaving Quebec, you have on your right, the County of Portneuf, and on your left, the County of Lotbinière, and in the interior and in rear of Lotbinière, the County of Megantic; these three counties, with the city of Quebec, and the Counties of Quebec, Montmorenci, Charlevoix, Chicoutimi, Saguenay, Beauce, Dorchester, Levi, Bellechasse, Montmagny. and l'Islet, compose

the Judicial District of Quebec — the third in geographical position; ascending the river.

On the banks of the St. Lawrence, are the Counties of Nicolet and Yamaska ; in rear, in the interior, those of Drummond and Arthabaska ; and on the north shore, the Counties of Champlain, St. Maurice and Maskinongé, which, with the town of Three Rivers, situated between the Counties of St. Maurice and Champlain, at the mouth of the River St. Maurice, composes the Judicial District of Three Rivers.

The River St. Maurice, which is upwards of three hundred miles in length, and which receives the waters of a large number of lakes, is of very great importance on account of the vast quantities of timber growing in its vicinity, the richness of the soil on its banks, and the existence of mines which produce iron of excellent quality. The town of Three Rivers is the centre of all the trade of the St. Maurice.

In the interior, towards the south, in rear of, and adjoining the District of Three Rivers, is the District of St. Francis, consisting of the small town of Sherbrooke, and the Counties of Wolfe, Compton, Sherbrooke, and Stanstead. The population, though still inconsiderable, is making rapid progress.

In following the course of the river, we have crossed a part of Lake St. Peter, an expansion of the River St. Lawrence; its length is about twenty seven miles, its breadth about nine miles; in the upper part, there are numerous islands. Lake St. Peter receives the waters of the River St. Francis, which gives its name to the District above mentioned, which it intersects, and those of the splendid River Richelieu, which flows out of Lake Champlain. These streams all swell the volume of the great St. Lawrence. Lake Champlain lies almost entirely within the territory of the United States ; but the whole length of the Richelieu is within Canadian territory.

The banks of the Richelieu are the most fertile in the whole District of Montreal ; we have on the right, the Counties of Verchères, Chambly, St. John, and Napierville; and on the left, the Counties of Richelieu, St. Hyacinth, Rouville, and Iberville, which are bounded by the river, and in the interior, Bagot, Shefford, and Missisquoi. In the County of St. Hyacinth, is the pretty little flourishing town of St. Hyacinth.

Returning to the St. Lawrence, at the mouth of the Richelieu, and ascending the former, which we must follow to a great distance before reaching the end, we have on the south shore, a second time, the Counties of Vercherès and Chambly; on the right, to the north, Berthier and L'Assomption, fronting on the St. Lawrence, and in rear, the Counties of Joliette and Montcalm.

We have thus reached the Island of Montreal, which produces, among

a thousand other excellent articles, the best apples on the Continent of America.

This island, thirty miles in length and nine in breadth, forms of itself the county of that name. It contains ten Parishes, and also the fine city of the same name, the most populous in all Canada, as well as the best built; in fact, in this particular, it is inferior to no city in the new world. Montreal is the principal terminus of the inland navigation, and the emporium of trade with the United States.

To the north of the Island of Montreal, is Isle Jesus, divided from it by the River Ottawa; it is about twenty-four miles in length, and contains four Parishes, which, with the adjacent islands, compose the County of Laval.

Isle Jesus is separated from the north shore by a branch of the Ottawa, which bears the name of Rivière du Nord; on the main land, along the shores of this river, lie the Counties of Terrebonne and Two Mountains. On the south shore, opposite Montreal, are the Counties of Laprairie and Chateauguay.

At the extremity of the Island of Montreal, at the junction of the black waters of the Ottawa, or Grand River, with the clear stream of the St. Lawrence, the two rivers form expansions, the expansion of the St. Lawrence being called Lake St. Louis, and that of the Ottawa being known as Lake of the Two Mountains; these two lakes are divided from one another by Isle Perrot and the end of the Island of Montreal. Lake St. Louis is entered by the Rapids of Caughnawaga, or St. Louis, the descent of which, in a steamer, which is now effected without the slightest danger, is well calculated to give satisfaction to those who are fond of that kind of excitement.

Let us now follow to the westward, the course of the River Ottawa which flows out of the Lake or Lakes Temiscamang at upwards of three hundred miles from its mouth.

On the north shore is the County of Argenteuil, and on the left to the south, the County of Vaudreuil. From this point the Ottawa forms the boundary between Upper and Lower Canada; ascending the River, on the Lower Canada shore to the right, are the Counties of Ottawa and Pontiac, which form the new District of Ottawa. On the Upper Canada shore are the Counties of Prescott, Russell, Carleton and Renfrew, with Lanark in the rear.

A very large proportion of the timber trade of the Province is carried on in the vicinity of the Ottawa. Its principal tributaries are the Rivers au Lièvre, the Gatineau, the Rideau and River au Moine, about seventy-five miles from the mouth of the Ottawa; at the foot of the Chaudière Falls, on the Upper Canada shore, is Bytown now called the City of Ottawa. By-

town stands in a fine situation on a height which, in the form of an amphitheatre, commands the bay forming its harbor.

Although this Town is built on the Western shore, it is the general mart for the trade on both sides of the Grand River, the population is half French, half English ; a handsome iron suspension bridge spans the River at this point. This tributary of the St. Lawrence presents a series of magnificent views from its mouth to its source ; although navigable throughout much of its length, the course of this splendid river is, in many places interrupted by rapids, the principal of which are at Carillon, the Chaudière, the Chats and the Allumettes. Steamers of a large class ascend and descend reaches of the River ; smaller ones go the entire length by means of locks ; and rafts of timber either shoot the rapids, or avoid them by passing over slides constructed for the purpose.

To return to the St. Lawrence, on the left hand lie the Counties of Beauharnois and Huntingdon, and on the left the County of Soulanges ; these are the last Counties of Lower Canada on the River and in the District of Montreal. This District, which is one of the least extensive of Lower Canada, is, however, one of the most populous and consequently the richest.

At the end of Lake St. Louis towards the west, are the rapids called the Cascades and the Cedars, beyond which the River widens again to about four miles, thus forming Lake St. Francis.

From the end of this Lake at St. Regis, at the intersection of the 45th parallel, Canada lies wholly on the north shore of the St. Lawrence and of the great lakes ; the south shore belongs to the United States, but the waters are common to both countries.

Following the same course we reach the County of Glengarry, the first in Upper Canada on the St. Lawrence, chiefly inhabited by Scotch Highlanders. From this point the reader will perceive by the change in the names of places, that we have left Lower Canada ; the emigrants from the British Isles have a respect for the traditions of their country, consequently the names of their Counties and Districts are the same as those of well known localities in Old England, Ireland and Scotland, or they are named after men who have added lustre to the British name, or have figured in the page of history since the conquest of Canada. One County only retains its French name, that of Frontenac. Following the example of Lower Canada, many of the primitive names given by the Indians to the townships and rivers have been preserved.

After Glengarry come the Counties of Stormont and Dundas, which formerly constituted the Eastern District. In Stormont is the little Town of Cornwall at the foot of a rapid called the Long Sault.

After passing the Rapids called the Gallops, we arrive at the Counties

of Grenville and Leeds and the pretty Town of Brockville, prettily situated on a rising ground.

We now reach the Thousand Islands, one of the most picturesque scenes in the whole of our splendid River. The name indicates a shoal of small Islands, strewed about in inextricable confusion; they are of all sizes, from that of a bark canoe upwards: some are merely a bare rock, others are covered with verdure; some are level with the water, others present to the spectator fine bold shores of scarped rock; no two are alike, each has its peculiar beauty.

We reach Lake Ontario, one hundred and eighty miles long, forty-eight wide, a hundred fathoms deep and its level two hundred and thirty five feet above that of the ocean.

Next comes Kingston, the second fortified place in Canada, the third town in importance in Canada West, situated near the Counties of Frontenac, Lennox and Addington.

The north shore of Lake Ontario next presents to us the County of Prince Edward, on a peninsula bounded by Lake Ontario and the Bay of Quinté. At the upper extremity of this Bay lies the County of Hastings and the Town of Belleville. These two Counties are inhabited principally by the descendants of New England colonists, who refused to take part in the revolution of America, and who by their fidelity to the British Government earned the name of United Empire Loyalists. It is into the Bay of Quinté that the Trent empties itself, a river of some importance from the extent of its timber trade, and the high state of cultivation of the neighboring County.

Next in succession, on the Lake shore, are the Counties of Northumberland and Durham, and the little towns of Cobourg and Port Hope. In rear of these are the Counties of Peterborough and Victoria, with the small Town of Peterborough. In this neighbourhood the country is intersected by fine Lakes, on which the steamboat's whistle is already heard; then follow the Counties of Ontario, York and Peel, of which the City of Toronto forms the centre. Toronto is the first City of Upper, and the third of United Canada, it is favourably situated in a bay which forms its harbour.

This City is built in the modern American fashion, with very wide streets crossing each other at right angles: it is the centre of a very considerable trade.

In rear is Lake Simcoe, thirty miles in length by fifteen in breadth: this empties itself into Lake Huron by the River Severn. It gives its name to the County of Simcoe, which encloses a part of its waters and is about the highest land in the country, being about 700 feet above the sea.

At the upper end of Lake Ontario are the Counties of Halton and

Wentworth, the city of Hamilton and the County of Brant. Hamilton lies in Burlington Bay, at the head of the navigation of Lake Ontario, its site is picturesque and well chosen for commercial purposes; like the neighboring Town of Brantford it is increasing at a rapid rate. Hamilton is the second city of Upper Canada, in importance and population.

In the interior to the West are the Counties of Wellington, Waterloo, and Perth. There is, in this part of the country, a considerable settlement of Germans. The chief place is the little Town of Berlin in the centre of what they call "Little Germany."

From Burlington Bay, as far as the River Niagara, which is the boundary of this part of the Province, the south shore of Lake Ontario belongs to Canada; to the eastward, in this locality, are situated the County of Lincoln, and the small Town of Niagara, the latter at the mouth of the river. This river which unites Lakes Ontario and Erie, is properly speaking only the continuation of the St. Lawrence; it is at about the middle of its length that the Niagara Falls, of which the whole world has heard, are situated. Fortunately it is not my province to describe this great wonder of nature; who in fact could attempt to give a correct idea of the Falls of Niagara?

On entering Lake Erie, the first Counties which present themselves to our notice are Welland and Haldimand. Lake Erie is about two hundred and forty miles long by fifty four in breadth, its depth is not more than eighteen fathoms, and its elevation above the level of the sea five hundred and sixty four feet.

The County of Norfolk, next in succession, was formerly the Talbot District named after Colonel Talbot, the first settler in this County, well known in Upper Canada, for his success in colonization. We have next the Counties of Elgin and Middlesex: the latter having the rising Town of London for its Capital.

In the interior is the County of Oxford, and on the shore, Kent, Essex and Lambton, on the river Detroit; at the head of the navigation of the river Thames is the thriving little Town of Chatham.

The river Detroit forms the junction of Lakes Erie and Huron; like the Niagara it is only a part of the St Lawrence; at about its middle it widens out, and forms Lake St. Clair, 24 miles in length by the same breadth.

Having entered Lake Huron, and coasting along its Eastern shore, we find the Counties of Huron, Bruce and Grey,—the last in Upper Canada.

The length of Lake Huron, is two hundred and forty miles by a breadth of about ninety. Its shape is very irregular, its depth about seventy-five fathoms, and its elevation above the sea 595 feet.

Here end the Canadian settlements, with the exception of some fishing posts on Lakes Huron and Superior, and some small companies of settlers, established in localities favourable to the drawing of timber or the working of copper mines. I do not enumerate among these the scattered remains of those wandering tribes who inhabit the extreme end of Upper Canada; these nations are fast disappearing from the Country, except the Montagnais in Lower Canada, in the Saguenay territory, of whom it is said, that the pure and gentle manners introduced by the missionaries have saved them from the vices and misery which are exterminating their brethren.

III.

A FEW WORDS ON THE PRINCIPAL PERIODS IN THE HISTORY OF CANADA.

Discovery of Canada by Jacques Cartier.—De Roberval.—Champlain founds Quebec.—Quebec taken by the English.—Canada re-taken by the French.—Montreal founded.—Colbert's scheme for colonising New France.—Civil Government of the Colony.—Ecclesiastical administration.—Education.—War between the colonies. Bravery of the Colonists.—Siege of Quebec.—De Frontenac.—D'Henille.—State of New France in 1721.—Quebec in 1755. Successes and reverses.—Defeat of Montcalm.—Victory gained by De Levis.—Capitulation and treaty of cession in 1761.—Struggles between the French colonists and English Emigrants.—Civil Government of 1774.—American War of Independence.—Constitution of the year 1791.—War of 1812.—Insurrection of 1837.—Present Government.

The reader must not expect more in this short chapter, than a few hasty remarks on the principal features of the political existence of this important country.

Canada was discovered by Jacques Cartier, in 1534; he made three voyages thither in succession, passed the winter in Quebec, and explored the river from the Gulf to Montreal. Quebec and Montreal were then as now, the great centres of population of the aborigines; the former was called Stadacona, the latter Hochelaga.

The first Governor of Canada, M. de Roberval, perished with the whole of his suite on his second voyage. This terrible catastrophe contributed not a little to retard the progress of the colony.

From 1534 to 1608, the date of the foundation of Quebec by Champlain, then Governor of Canada, history records nothing of interest beyond the organization of companies in France, voyages, discoveries and wars with the American Indians. The disturbed state of politics in Europe caused the care of managing the colonization of Canada to devolve almost entirely on private individuals, who unfortunately devoted their energies rather to driving a good trade in furs with the Indians, than to the promotion of agricultural industry in the colony. But dating from the foundation of Quebec, and thanks to the zeal of M. de Champlain, the idea was formed of making settlements, and of inducing the Indian nations (either by force or treaty) to ally themselves with France. In 1629 the success of the Colony was again retarded by the taking of Quebec, by the English Admiral Kirk, but in 1632 Canada was restored to France.

Montreal was founded in 1641, and made strong enough to resist the invasions of the Iroquois, who were always ready to harass the French and their Indian allies.

Old France had done but little for its colony in 1663, but under the administration of the great Colbert, plans of colonisation were formed. At this period the French population of Canada amounted to no more than two thousand inhabitants, irregularly scattered in Tadoussac, Quebec, Three Rivers, Montreal, and a few other posts.

Till then all political authority in the colony, both civil and judicial had been vested exclusively in the Governor. At that time however, a more regular and effective system of Government was established, by separating the Executive from the Legislative authority.

The earliest constitution of Canada established a supreme Council, several tribunals with limited powers, and the *Coutûme de Paris* as the legal Code.

A functionary, styled an "Intendant" was appointed, who combined the offices of Minister of Justice, of Finance, of Police, and of Public Works. Grants of land continued to be made, as at former periods, in the form of fiefs and seigniories, under conditions regulated from time to time, by Royal edict of the King of France. Questions of feudal law becoming matters of litigation were decided by the decrees of the governors and intendants.

The Ecclesiastical Government of the country was at first administered by vicars apostolic, then by bishops, the first of whom was Monseigneur de Laval. Schools and colleges were instituted by the zeal of these bishops. New discoveries were continually made, the success of which was greatly advanced by the activity of the missionaries, and the country rapidly improved.

In 1689 war broke out between the French and English colonies, which was marked by the usual variations of success of the opposing parties. In saying that war broke out between the colonies, I allude to the neglected state of New France, left to its own resources to stand or fall. The English Admiral, Phipps, came with a fleet to lay siege to Quebec, but was repulsed. Thanks to the good government of Count de Frontenac, New France was so successful in arms that she determined to assume the offensive against the English colonies, and acted with such energy that D'Iberville, the Canadian Cid, after several successful battles by land and sea, took possession of Newfoundland and its capital, St. John's, and also reduced the forts in Hudson's Bay.

At length, in 1697, peace was concluded with England, and was succeeded in 1701 by a treaty of alliance with all the Indian nations in

Canada. A new war was succeeded by a new treaty, by which France ceded to England Nova Scotia, Newfoundland, and Hudson's Bay.

In 1721 New France reckoned a population of twenty-five thousand souls, owners of sixty-four thousand arpents of cultivated land, yielding a very considerable produce. It contained several educational establishments, and a fair amount of trade was carried on.

In the course of the hostilities which took place in 1754, Washington was defeated at Fort Necessity by M. de Villiers.

On the declaration of war in 1755, England had determined on the conquest of Canada, and France, caring little for her colony, entrusted its protection to the heroism of the inhabitants, aided by a few soldiers. The beginning of this campaign was favorable to the Canadians, who defeated Braddock at Monongahela, and took the forts of Oswego and William Henry, which they destroyed. In 1758, however, England raised her colonial army to fifty thousand men. The English General, Abercromby, lost the battle of Carillon, but the English army were successful in their enterprises in the Gulf.

In 1759 General Amherst attacked the interior of Canada, while Wolfe with a fleet came before Quebec, and landed his troops on the Island of Orleans; having scaled the heights of Abraham, he offered battle on the plains near Quebec; the victory was gained by the English, both Generals were killed, and Quebec was obliged to capitulate. The Chevalier de Levis was unable to retrieve this loss, though he subsequently defeated the same troops on the Heights of St. Foy. The fate of the colony was decided; having lost the support of its stronghold, and attacked on all sides, it was compelled to surrender; thus, by the capitulation of 1761, New France ceased to form a part of the French Empire, and became a dependency of the English crown. The capitulation secured to the twenty thousand colonists the free exercise of their religion, the maintenance of their ancient laws, and the preservation of all their institutions, social, religious, and educational.

From 1761 to 1774 the history of the colony is filled with recitals of the contests between the old French colonists and the new settlers of British origin, the latter being nearly always sustained by the despotic government of that period.

In 1774 a sort of constitution known as the "Quebec Act, was framed in England; by it a supreme Council was created, the old French laws were re-established, and an equality of civil rights secured to both Catholic and Protestant, by dispensing with the oath administered to public officers, which up to this date had prevented Catholics from holding any office.

The American war of Independence had some influence in Canada, the

Colony was invaded, but remained faithful to its allegiance and opposed and repulsed the enemy.

In 1791, was granted that constitution which established freedom of election and responsibility to the people, it was received with enthusiasm by the population of Canada. All appointments to places of honor and profit were under the patronage of the Crown; the people elected their house of Representatives, and the King appointed the members of the Legislative Council; all laws before coming into force, required the assent of the three branches of the Government. An Executive Council formed at the same time a Court of Appeals, but the nomination to office and maintenance in it, in this body, depended entirely on the Crown.

In 1812, the war between the United States, and the mother country, gave the militia of Upper Canada an opportunity of displaying their courage, and, with some trifling exceptions they were generally successful, so that the enemy was finally repulsed after a contest of three years.

The continual differences between the Colonists and the authorities, which succeeded the war, resulted in 1837 in an insurrection, and a partial rising in both provinces. This movement was subdued and for some time Lower Canada was placed under martial law, and afterwards governed by the decrees of a Special Council.

In 1840 the constitution which now regulates the affairs of the province, was granted by Great Britain; this constitution will be treated of in the chapter specially dedicated to a description of the political and social institutions of the country.

The constitutional Government which Canada now enjoys, on the model of that of the mother country, is administered, as in England, in turns by different parties, who assume the reins of Government and conduct its affairs, and again in their turn pass into opposition. The most remarkable feature in the history of Canada, from 1840 to 1855, is the vast amount of public works, undertaken and completed either wholly or in part, and of which some more extensive notice will be taken hereafter.

The colony appears to be animated by a most excellent public spirit, which laying aside the petty interests of party devotes itself to the general welfare, pointing out to the different classes of society how much nature has done for the country, and what is required to accelerate its progress towards the greatness which awaits it.

IV.

PHYSICAL ASPECT OF CANADA, AND REMARKS ON ITS GEOLOGY AND METEREOLOGY.

Surface of the Country.—Form and character of the Mountains.—Limits of the valley of the St. Lawrence.—Chain of the Laurentides and Appalachian or Alleghany Mountains.—Features of the Country-—Courses of the Rivers.—Level of the Valley of the St. Lawrence: North and South Shore—Principal geological characteristics.—Climate.—Comparative temperature.—Canadian Winters.—Meterological observations.

Although the surface of the country is in general very uneven, there are no very great mountains ; none of them exceed 5000 feet in height, and nowhere do they assume the appearance of crags or peaks, their well-rounded summits being always covered with full-grown trees; and if by chance the naked rock exhibits itself like a wall on the borders of rivers, it is always crówned by a sort of table land, on which the largest trees are found to flourish.

Two chains of mountains, which form together what is called the *height of land*, and which have a general direction from the north east towards the south west, inclose the valley of the St. Lawrence on both sides, and in the north divide the waters of the tributaries of the St. Lawrence from those of Hudson's Bay. The first of these chains is called the Laurentides. In the south, the height of land formed by the Alleghany or Appalachian range separates the waters of the St. Lawrence from those which flow by the river Ristigouche, into the the Bay of Chaleurs, by the river St. John, into the Bay of Fundy, and by the Penobscot, the Hudson and others directly to the Atlantic Ocean. From the height of land, the ground slopes downwards to the bed of the river at a less inclination in proportion as it approaches the west, for the valley of the St. Lawrence has a gradual ascent as it penetrates into the interior, but the centre of the valley rises more than the sides, so that on reaching the flat country in the interior the rivers cross one another and form a net work, those which flow towards the ocean receiving their waters from the neighborhood of the lakes, and those which empty themselves into the lakes draining the country far to the south.

The mean height of the bottom of the ravines in the chain of the Alleghanies, in the interior of the District of Gaspé is about on the same level

as the waters of Lakes Huron and Michigan, and the summits of the Appalachians, in the neighborhood of Lake Erie, in the States of New York and Pennsylvania, are about the same height above the level of the sea, as the tops of the Alleghanies, in the District of Gaspé, Quebec and the State of Vermont; but in the west, the beds of the great lakes are on much higher levels than that of the Gulf, and the river St. Lawrence in the District of Gaspé and Kamouraska. There is a difference of only two hundred and thirty-five feet between the level of the waters of the Gulf and of those of Lake Ontario, in a distance of seven hundred and fifty miles, and the depth of Lake Ontario, is a hundred fathoms. There is a difference of level between Lakes Ontario and Erie of three hundred and twenty-nine feet, though they are but a few miles asunder, and the Lake Erie is only one hundred and eight feet deep. Along the whole extent of the St. Lawrence, the north shore is more irregular than the south. The vast number of rivers that flow into the St Lawrence through its lengthened course, do not reach it in a uniform direction, but at a variety of angles, nearly all however, flow from the west towards the east on the north shore, and from the south towards the north, on the north shore, except towards the great lakes into which the rivers empty themselves from all directions.

There is a far greater amount of territory on the north than on the south shore, and the sides of the valley of the St. Lawrence are also much more extensive; it is also on the north shore that the largest rivers and the finest forests are found.

The stratum on which the basis of the valley of the great river rests partakes of the character of the primary gneiss and transition formation, which crops out in several parts of the country, the gneiss more particularly on the north shore in both sections of the Province, the transition rock on the south shore. Of the different geological formations of the country which are most remarkable, some are analogous with those of the states of the neighboring Union. All appear anterior in their conformation, and consequently in lower layers than the coalfields, and even lower than the Devonian strata of transition rocks, the latter being only seen at the two extremities of the country. The silurian period appears to be the predominant characteristic.

The kind of rocks most prevalent, to class them by a purely mineralogical system, are the terriferous, calcareous, the argillaceous and conglomerate, among which the most common are the calcareous and sandstone. Canada is rich in minerals and the reader will find a list of the most important in the chapter dedicated to the natural productions of the country.

The climate of Canada is generally very healthy, especially towards the

lower part of the River. No endemic disease exists in the country, if we except the intermittent fever in some parts of Upper Canada; this also disappears as soon as the country is cultivated, and the few marshes in the neighborhood of the great lakes become dry or united with the cities.

In so vast a tract of country there must of course be great variations in the meteorological phenomena, taking as examples the climate of Quebec, for the eastern end of the Province, that of Toronto for the west, and Montreal for the centre. The temperature rises gradually going west, so as to make a difference of about a fortnight in the advent of spring between Toronto and Quebec, and the same for the beginning of winter. The mean temperature in summer is a little higher at Quebec than at Montreal, and a little higher at Montreal than at Toronto. The mean temperature of Quebec in winter is some degrees lower than that of Montreal, and the temperature is lower in Montreal than in Toronto. Thus Quebec exhibits the greatest degree of heat in summer and of cold in winter, so that in short the annual mean temperature of Quebec differs but little from that of Toronto. It will be seen hereafter, what effect the climate has upon the vegetable productions of the country, affecting, as has been already stated, only certain tender fruit trees and shrubs.

At Quebec the temperature in summer often rises to 95° Fahrenheit, and has fallen in winter, though but rarely, to 93°. The maximum temperature at Toronto during a period of ten years was 95°, but this is not common; and the minimum temperature for the same period was 18° below zero.

The mean temperature of the years 1847-8-9, at Toronto and Montreal, was for Toronto 45° 30″ above zero; for Montreal 45° 45″, making a difference of only 15″.

We may here cursorily remark, to avoid comparative calculations, that Arago estimates the mean temperature of Europe at 55° 20″ Fahrenheit and Dr. Craigie that of England at 50°, and that the mean temperature of Canada is between that of Copenhagen (44° 18″) and Berlin (46° 4″.)

The greatest meteorological variation between Upper and Lower Canada consists in the following fact: That in Lower Canada the snow covers the earth early in winter, and disappears in the space of a few days in spring, while in Upper Canada almost universally it lies but a few weeks; that in the former its depth in the woods amounts to about three feet, while in the inhabited part of the latter, it rarely exceeds a few inches.

Our winters which Europeans believe to be dreadful, are with us the season of enjoyment, and many strangers after passing a winter in Canada have been heard to say: “Well! after all, your winter is delightful, and is not hard to bear.

Our snow which frightens the new comer, makes the best roads in the world, and winter is the season for the carriage of heavy articles, for procuring timber and fire-wood, and for pleasure excursions; and if the winters are long, and the snow deep, they have the inestimable advantage of contributing to the health of the inhabitants, by destroying all miasmata, and nourishing and fertilising the soil; neither is the wonderful rapidity with which the growth of vegatation proceeds, to be forgotten.

The winter air is very dry, and so exhilarating, that without consulting a thermometer, a change of a few degrees is not perceptible, and generally speaking, those days in the winter are the least agreeable when the temperature is too high for the season.

The principal fault of our climate is its excessive dryness in summer, which however, decreases as cultivation extends, and which is less felt in the Lower St. Lawrence, in the districts of Gaspé, Kamouraska, and Quebec, and on the tongues of land which constitute the counties of Lincoln, Welland, Essex, Kent, and Lambton, on account of their being surrounded by large masses of water. But these two extreme points of the Province, have as a counterpoise to this advantage two drawbacks peculiar to them; in Lower Canada the heavy northeast winds with their accompaniment of beating rain in the autumn; and in the west, cold winds and muddy roads, frozen or half frozen during the greater part of the winter.

The autumn usually brings over the navigable waters, heavy fogs, which certainly form one of those miseries of our country, from which, however highly favoured otherwise, it is not exempt.

Canada has but little to complain of in the way of meteorological phenomena, such as devastating storms, thunder or hail; although some accidents have occurred from these causes, they are so rare and so limited in their extent that we may almost congratulate ourselves upon being exempt from them on the shores of the St. Lawrence.

The rivers bounded by high banks are not subject to those inundations, which in many parts of the old and new world cause from time to time such serious devastations.

V.

NATURAL PRODUCTIONS AND MANUFACTURES.

Productions of the Mineral Kingdom, and the principal locations of their beds, building stone, combustible matters, mineral colours, precious stones, stones capable of vitrification, mineral fertilising substances, precious and other metals.—*Productions of the Vegetable Kingdom*, timbers for building and other purposes, plants and fruits.—*Productions of the Animal Kingdom*, beasts, birds fishes, and cetaceous animals.—*Manufacturing processes*, extraction of the raw material, its convertion into articles of consumption.

We now proceed to consider the principal substances of the Mineral Kingdom, which are known at the present day to exist in the country, and to give the names of the places in which they are found; it is of course our intention only to speak of those articles which come under the head of industrial produce.

Granite of good quality for building purposes is found principally in the counties of Megantic, Sherbrooke, Stanstead, Shefford, and St. Hyacinth; gneiss is also found in abundance on the north shore, in different parts of both Upper and Lower Canada.

Sandstone for building is also found in different parts of the Province, principally near Quebec, the mouths of the Niagara in Canada West, and the Ottawa in Lower Canada.

Calcareous boulders are found in all directions. Lime also exists in all parts of the country, and hydraulic limestone on the shores of the Grand River, in the county of Brant, near Lake Huron; it exists also in the vicinity of Kingston and Bytown, in the county of Argenteuil and at Quebec.

Clays of various qualities are found over the whole face of the Province. Marbles of a diversity of colours are found in many places, and serpentine, particularly in the districts of Quebec and St. Francis, on the south shore of the river.

The combustible substances of the Mineral kingdom are very rare; nevertheless, peat, naptha, petroleum, and asphalt exist in certain places.

Slate of good quality abounds in the neighbourhood of the River St. Francis, and in the district of Quebec. Millstones of an inferior quality may be procured, but the best are to be had in the district of Gaspé. Whetstones abound in several localities, and very good tripoli has been discovered in the counties of Berthier and Montmorenci.

Earths of different colours are met with in numerous places; for instance, white barytes along the north shore, from Lake Superior downwards ; yellow, red, and brown ochre, in Tadousac and Montmorenci, and on the borders of Lake Huron a kind of ferruginous clay, which produces a delicate red.

Lithographic stones are procured, which, though not of the best quality, may be employed to great advantage.

In the category of precious stones we can boast of agate, jasper, hyacinths, amethysts, and jet ; grains of ruby found on the borders of the Ottawa have been shewn to us.

Materials for the manufacture of transparent and opaque glass are abundant, but more especially in the counties of Beauce and Megantic; there is a great deal of white quartzose sandstone on Lake Huron, near Lake Erie, and in the counties of Beauharnois, Vaudreuil and Laval,—and basaltic and other similar rocks on the north shore of Lake Superior, and in the counties of Montreal, Vandreuil, and Chambly.

Compact talc and pot stone are found in many places in great abundance, but chiefly in the counties of Beauce and Megantic, together with plumbago ; asbestus is found in Stanstead and Kamouraska. Gypsum is to be had on the shores of the Grand River, near Niagara, and in the Islands in the Gulf at the mouth of the St. Lawrence ; phosphate of lime principally on the and Upper Ottawa, and probably along all the north shore, going eastward ; and calcareous marl, suitable for manure in a number of places.

The country also contains uranium, chrome, cobalt, manganese, iron pyrites, dolomites, and magnesites, for all which chemistry may find uses.

Native gold exists under ground in sufficient quantities to be worked to great advantage, in the county of Beauce near Quebec, on the banks of the river Chaudière. Slight traces of gold in veins have been discovered in the copper mines of Lake Superior and in the districts of St. Francis and Quebec, where native silver is also found. Nickel and cobalt are met with near Lake Huron, and traces of them are found in other places. Copper exists on the shores of Lakes Huron and Superior and in the District of St. Francis. Lead is found in the Ottawa and Gaspé districts. Iron in its various natural states abounds in many parts of Upper and Lower Canada, but principally near the River St. Maurice in the neighbourhood of the town of Three Rivers. The crystalline schists on the north shore through the whole extent of the country are found to contain masses of iron ore, generally of specular iron.

We shall now proceed to inquire what are the most common and most useful productions of our forests, first noticing those which exist over almost the whole country; we shall then show what trees are wanting in some localities, and what are exclusively peculiar to others.

The trees which we find almost universally in our woods, are, the oak, maple, walnut, yoke-elm, elm, birch of two kinds, ash, three kinds of pine, hemlock, tamarack, yellow and black spruce, the fir, cedar, poplar, aspen and white birch of two varieties: all these trees attain a considerable size, and grow in all parts of Canada, except on the coast of Labrador, where the only trees that thrive, are the white birch, the fir, the different kinds of spruces, beech and one of the varieties of pine. The trees of smaller growth common to all the country are the cornel tree, willow, alder, hickory, and wild cherry. In our forests are found also, gooseberries, currants, strawberries, wortleberries, juniper berries, raspberries and a host of other trees, shrubs, berries and plants, some of which are useful as medicines or for dyeing; these plants, among which we must not forget to mention the ginseng, so famous in China, are found throughout the whole length of the Province, from Gaspé to the River Detroit.

The black walnut, the chesnut, iron wood, saffron and a few others, are peculiar exclusively to the peninsula at the western extremity of Upper Canada. The oak is more abundant and of better quality in Upper than in Lower Canada. The same remark applies to the elm, but all other woods attain a greater perfection in Lower Canada.

There is one wood in particular of great value in ship-building, and which from its strength and durability is beginning to be held in high estimation in the foreign markets, it is called Red Spruce, or Tamarack. This wood appears to possess within itself, all the requirements of ship-timber. The smallest of the forest trees above mentioned attain a height of seventy feet, and a diameter of two feet at their full growth. We have pines of one hundred and fifty feet in height by six feet in diameter, which serve for lower masts in one single piece for ships of two thousand tons. Our black walnut, bird's-eye and curled maple, and our waved red beech, are splendid woods for cabinet ware and *marqueterie.*

Canada has sent to the Paris Exhibition of 1855, specimens of all the productions above enumerated; just as they are got out in abundance for commercial purposes.

As a matter of course all varieties of grain and vegetables are cultivated, and arrive at great perfection throughout the whole province; the same may be said of tobacco, hemp, flax, and hops, as well as apples, plums, cherries and many other fruits. The best apples on the whole continent are those grown at Montreal, here also are produced the best pears and melons; owing to the great care bestowed on their cultivation; the best plums, and best cherries (called French) come from the Quebec district, where other fruits only come to perfection when sheltered by thick trees against the north east winds of autumn. Grapes are produced with some success at

Montreal, but peaches attain perfection only west of Toronto, and more particularly near the river Niagara.

The wild animals found in Canada are the moose deer, (a kind of elk ;) Caribou, (great rein-deer,) the buck, the black and red bear, the lynx or stag-wolf, the wild cat, martin, mink, common wolf fox, the carcajo or kinkajou, the martin, an animal which belongs to the family of small bears, the beaver, the otter, muskrat, marmot, the polecat, the skunk, the hare, which abounds in Lower Canada, and a great variety of squirrels. I have here only mentioned those species of animals which are most numerous and which are found in all our forests, with this exception, that the moose is not found on the coast of Labrador, rarely crossing to the east of the Saguenay or to the west of the Ottawa, and never passing higher than the Richelieu on the south-west, which shews it to be an animal peculiar to Lower Canada; again, the skunk is found in the west where the moose is not seen. The wolf is very scarce below Quebec, but foxes are numerous and very large; on the north coast of Labrador and in the Saguenay territory,black and silver foxes are common ; the price of their skins is perfectly fabulous, a single black fox skin, having been known to fetch as high as £24, sterling.

Our birds comprise every variety of ducks, wild geese; both salt and fresh water divers, the wild turkey of Upper Canada, the partridge, which abounds every where, but chiefly in Lower Canada, quail, woodcock, snipe, cranes and herons, plover of all kinds both large and small, birds of prey, such as eagles, hawks, and others, screech-owls, ortolans, the thrush, the woodpecker, the titmouse, and many others, some remarkable for the beauty of their plumage, others for their melody ; among the latter the humming bird, and the nightingale, which arrive pretty early in the spring.

The fish which are the most plentiful in our lakes and rivers are the salmon-trout, the common trout, maskinonge, *touradi*, white fish which are of great variety, the pike, perch, and a host of others; the sturgeon which attains a length of several feet, frequents some parts of the river. Great quantities of fish are taken in the Western Lakes, but they are trifling compared with the fisheries of the Gulf and Lower St. Lawrence, where cod, mackerel, herring, pilchard, sea-trout, eel, salmon, and many other species of fish abound in such quantities as to attract many fishermen from the United States.

Every year, fish to a large amount is caught on these stations, without taking into account the profits derived from the porpoise, seal, and whale fisheries; owners of fishing vessels have made enormous fortunes by pursuing this branch of industry.

It is needless here, to notice the domestic animals, the different European varieties of which have been introduced into this country, to cross or improve the breeds.

It must be evident to the reader, that a population not exceeding 2,000,000 is too scanty, and unable to furnish sufficient hands for the cultivation of a fertile soil of so vast extent, or to reap all the advantages to be derived from those resources which we have merely attempted to describe in few words, and he will perceive at the same time that there is ample room under the Canadian heavens for the employment of intelligence, capital and labour, the great levers of human industry.

Let us take a hasty view of the industry of the country under two principal headings: Firstly, The production or extraction of the raw material; Secondly, The conversion of primary substances into manufactured articles, either for home consumption or for exportation. We shall, in this chapter, only point out the names of the commodities, as a statistical enumeration of them will be given in a chapter dedicated to that purpose. By the extracts, which the reader will find in another chapter taken from the census of the inhabitants, he will see the number of hands which each trade employs.

Besides the extraction from the earth of stone fit for the erection of buildings and monuments, employment is found in extracting gypsum to be used as a fertilizing matter, white quartzose sandstone for the preparation of glass, coloring earths or pigments, for the painting of houses, in procuring native gold, copper, and particularly iron in all its varieties. We shall of course only notice here such substances as are produced in large quantities. The European capitalist or manufacturer wishing to make practical experiments in Canada, may, by comparing the account which has just been given of the natural products of the country, with what the author here shews are worked and employed, and by referring to the tables of statistics of the occupations of the people, arrive at a very correct estimate of the resources from which we derive the greatest profit, of the amount of that profit, and also of those matters which are not as yet made use of; he may thus judge what branch of industry would yield the highest return, and offer the best field for the employment of capital.

The yields, of the mineral substances of which we have spoken, do not suffice for the uses of the country, and though these minerals exist in great abundance under the soil, we nevertheless, are compelled to import gold, iron, copper, and colouring matters in their raw state.

The produce of our forests employed for building purposes, for cabinet-making, and marquetery is the principal item of our exportation, and added to unmanufactured furs and agricultural produce,—which is in Canada,

similar to the productions of England and the north of France,—form almost the only articles which we export in their raw state, the other exports being comparatively trifling. Our woods supply gums for the preparation of varnishes, and for certain chemicals, among them are the fir gum, the spruce gum, and the pine gum, or Canada balsam.

The natural productions which Canadian industry employs for conversion into articles of utility, or to adapt for useful purposes, will be enumerated in my future observations on our manufacturing establishments. There are in Canada in all directions, foundries for the manufacture of all such articles as are usually produced in similar establishments, from the largest parts of steam engines to the smallest cooking utensils. The manufacture of clay into bricks and other articles of pottery is also carried on very extensively. Some of our producers have furnished considerable quantities of excellent slate, but still, the supply of all these articles is far from equalling the consumption.

The manufacturing industry of Canada, employs a part of our timber in ship-building, and in this respect Quebec is one of the greatest shipbuilding ports in the world. I may be excused a little national pride, when I state the fact, that a ship of 1,600 tons, the Boomerang, built at Quebec by Mr. Theophile St. Jean, made the shortest passage on record, from England to Australia, having beaten the Marco Polo, a rival ship, by seven days; at the same time landing her cargo in perfect order, notwithstanding the high rate of sailing. Our manufactories of furniture, carriages and implements, in which wood forms the chief material, exempt us from the necessity of sending abroad for supplies for our home consumption, speaking of course in general terms, without noticing more than the most remarkable features, and avoiding all such details as are only to be found in tables of statistics. I have here to add to the list of manufactures from the products of our forests, that of pot and pearlash, and also, the conversion (by means of our numerous and powerful saw mills) of our forest trees into planks, boards, laths, &c., &c., &c.

The produce of furred animals and the plumage of birds, are also prepared in several ways, yet skins exported by us in their natural state frequently return here manufactured.

Great quantities of oils are manufactured from the blubber, of cetaceous animals taken in the gulf and River St. Lawrence, and the curing, salting, and smoking of fish is carried on, on a large scale: of these articles our production exceeds our consumption, and we might even increase our production of these articles, inasmuch as foreigners come annually to reap the benefit of our super-abundance. The manufacture of porpoise leather must be noticed, it having been brought to such perfection as to entitle it to the rank of a new invention: whale leather is also made, though the whale is generally supposed to have no skin.

The raw materials of agricultural industry, employ in their preparation, a vast amount of labour.

Our mills convert our wheat into flour of several descriptions and qualities. An abundance of sugar is made from the sap of the maple tree. We prepare our meats by salting or smoking, either for domestic use or for exportation : but it would be superfluous to enumerate all these various branches of industry which make up the complement of, and go to swell the labors of our farmers. We export comparatively little grain in its natural state.

Canada reckons several woollen and linen fabrics among her artificial productions, and all sorts of machinery, tools, leather, paper, printing type, musical instruments, and further, contains workshops for every art, trade and profession. In these branches of labour the workmanship of all ordinary useful articles is of a high standard ; in matters of luxury we yield the palm to Europe, but to Europe only.

The author is well aware that many details given in this chapter may appear tedious, but the intention of this work made their publication a matter of duty. The commercial statistics will familiarize the public with those imports and exports of Canada, which we have not thought proper to introduce here.

VI.

MEANS OF COMMUNICATION.

Common Roads;—Mail and Telegraph Communications;—Navigation of the St. Lawrence;—Natural obstacles overcome;—St. Lawrence, Lachine, Beauharnois, and Welland Canals;—Best route to the far West;—Rivers, Saguenay, Richelieu, Ottawa, and Chambly;—Rideau and Grenville Canals;—Slides for rafts;—Burlington and Desjardins Canals;—Grand River, Thames and others;—Railways;—St. Lawrence Route compared with the American Lines of travel.

Before entering upon a review of our great routes of intercommunication, let us observe that good common roads traverse the country in all directions, that there is no corner, however thinly inhabited, nor however remote from the centre of population, that has not a road leading to it. These are not all first class roads, far from it, but they are passable, and indeed are traversed daily by the mails going into the settlements formed along the great public roads, and twice a week to the more remote settlements. It is hardly necessary to add that telegraph lines are established wherever they have been found necessary, and that they are double and treble between the great centres of population and business.

The distance from the mouth of the St. Lawrence to the extremity of Lake Superior, following the course of the Lakes and Rivers, is above 1800 miles; few rivers in the world present so extensive a highway, and none are navigable for large ships to so great a length; the St. Lawrence alone offers this advantage to vessels treble the tonnage of those with which Columbus and Cartier made the discoveries of America and Canada. Nature had rendered the St. Lawrence navigable as high as Quebec for ships of the largest size, and for vessels of five or six hundred tons burthen as far as Montreal, but there they encountered an obstacle, the St. Louis Rapids, which interrupted their progress; beyond this the navigation was again open for large vessels, but between Montreal and Kingston forty-one miles of rapids formed a serious barrier to their ascent; next followed Lake Ontario, and from Lake Ontario to Lake Erie, a distance of only twenty-seven miles, an ascent of 330 feet, and the Falls of Niagara opposed themselves; from thence through Lakes Huron and Michigan the navigation was open, but the entrance to Lake Superior was still barred by the Falls of St. Mary. Now, all these obstructions, all these formidable barriers opposed by nature have disappeared, you may start from any ocean port in a vessel of two hun-

dred tons burthen and reach without transhipment the head of the great Lake. The St. Louis Rapids are avoided by the Lachine Canal, nine miles in length; the Cedars, Coteau, Long-saut, Gallops, and other Rapids by the Beauharnois, Cornwall and Junction Canals, thirty-three miles long. The Falls of Niagara and accompanying Rapids by the Welland Canal, twenty-seven miles long, and the St. Mary's Rapids by a very short Canal, built by the Americans, our neighbours. The Lachine, Beauharnois, Cornwall and Junction Canals have together 27 locks, the dimensions of which within the gates are 200 feet by 45, with nine feet depth of water on the sills. The Welland Canal has 27 locks of 150 feet by 26 feet in breadth, and eight feet six inches depth of water on the sills.

The reader will perceive that Canada has reason to be proud of her great "highway," which moreover has cost the country over £2,800,000 sterling.

It must be evident that the St. Lawrence route is unrivalled. It is undoubtedly, the best, the safest, and the cheapest for the emigrant, whether he wishes to settle in any part of Canada, or to wend his way towards the Western States of the American Union, Ohio, Michigan, Indiana, Illinois, Iowa, Wisconsin, or Minnesota, for it is the connecting link with all the American Railroads which reach the Lakes at Buffalo, Cleveland, Sandusky, Toledo, Detroit, Chicago, and Milwaukie, and with all our own lines of Railroad. The whole of this Canadian navigation, extending over the fresh waters of a great river and extensive lakes, is in the highest degree favorable to the health of travellers and to the preservation of certain articles of trade which become damaged by a lengthened exposure to heat, and many of which indeed suffer considerably by a long voyage on the tepid waters, without depth or current, of the Erie Canal in the State of New York.

Before speaking further on the subject of the superiority of the St. Lawrence route over every other, for the greater part of North America, let us examine the other inland navigable routes which the country possesses, all these different branches from the same trunk radiate from each side of the principal artery. The first is to the North, the Saguenay, which offers a navigable channel for nearly ninety miles, to the largest sea-going ships. The second is the Richelieu, which unites the Saint Lawrence with Lake Champlain, aided by the Chambly Canal, constructed for the purpose of avoiding the rapids of the same name. The length of this canal is about 12 miles, it contains ten locks, each one hundred and twenty feet long by twenty-four broad. Next is the Ottawa which has at its mouth a lock one hundred and eighty feet by forty-five, with six feet water to allow the large steamers to pass from Lake St. Louis into the Lake of Two Mountains,

which connects the Ottawa with the Saint Lawrence, as far as Carillon, at that point large vessels are compelled to make a stop; other boats a few miles above Grenville, extend their route to the City of Ottawa. So much for large vessels, but the Ottawa forms a water thoroughfare for a distance of more than two hundred miles for steamers one hundred and thirty feet long by thirty-two in breadth, drawing five feet water, this route was opened by means of the St. Anne Lock, of which we have spoken, at the entrance of the Lake of Two Mountains, by a Canal which avoids the rapids which impede the navigation between Carillon and Grenville, then by another canal, the Rideau, 126 miles long which intersects the interior of the country from the City of Ottawa, taking its course towards the South West as far as the neighborhood of Kingston, at the mouth of the river Cataraqui. This canal, constructed on a mixed system, comprises locks of which we have given the dimensions, and others, some of which are of gigantic dimensions, and are intended to raise the level of lakes and rivers. This expensive work, undertaken by the British Military Government for a purely strategical purpose, is now devoted entirely to commerce.

Beyond the Chaudière Rapids near the City of Ottawa, the Ottawa is navigated by Steamers of middling size to the foot of the Chats Rapids; from this point a railway built by individuals on an economical plan and which, for that reason, is called the *Aboriginal Rail-Road,* connects with another line of steamers which runs to Portage du Fort.

Independent of this the Ottawa possesses slides, constructed along its whole length for the descent of rafts, thus avoiding the rapids which formerly caused the loss of many lives, and of large quantities of lumber. Slides are also constructed on the Rivers St. Maurice, Trent and others.

At the head of Lake Ontario, Burlington Bay used to be inaccessible, in consequence of a bar or spit which barred the entry, but a channel has been excavated faced with piers to preserve the sides, and so constructed as to admit the largest vessels that navigate the Lake. From the end of Burlington Bay, the Desjardins Canal, about three miles in length, has been opened. This is simply a passage through a swamp, deepened by a dredging machine, the object of this work was to avoid the ascent and descent of a steep hill, the foot of which borders the marsh through which the canal is made.

The Grand River, which empties itself into Lake Erie, is made navigable for vessels of small burthen as far as Brantford, about 36 miles from its mouth, and is connected with the Welland Canal by a branch of this canal which is fed by the River.

The Thames is also navigable for a certain distance for vessels of moderate draught, it empties itself into Lake St. Clair.

No mention is made here of inferior communications nor of the navigation of some of our inland lakes and rivers, for instance, Lake Simcoe, and River St. John, Lakes Temiscouata and Madawaska on the frontiers of Lower Canada, which put us in connexion with the State of Maine and the Province of New Brunswick.

A railroad unites the Counties of Levis and Quebec, with Montreal in one direction and with the United States and the Atlantic in the other, by effecting a junction at Melbonrne with the St. Lawrence and Atlantic railroad, which runs to Portland along the borders of the State of Maine. This route forms part of a grand scheme, known as the Grand Trunk Railway, which is intended to penetrate through the whole province, and of which the following portions are in progress, viz.: from Trois Pistoles, County of Temiscouata to Quebec, from Montreal to Toronto and from Toronto to Port Sarnia. It is in connection with this line of railway that the Victoria Bridge is now being built to join the island of Montreal to the south shore of the St. Lawrence. This gigantic work will with its immense abutments be about three miles long, it will be a tubular bridge on the same principle as that over the Menai Straits in England, the height of its piers will be such as to admit of vessels passing under it ; when complete, it will be the largest bridge in the whole world.

The other Canadian Railroads in operation are, the Lanoraie, Berthier, and Rawdon, twenty-four miles long, which intersects the Counties of Berthier, Joliette and Montcalm ; the Montreal and Lachine, in connection with the Railway from Caughnawaga to Plattsburgh *via* New York ; the St. Lawrence and Champlain which has its terminus at Rouse's Point on Lake Champlain ; these two latter unite with American railroads which have their termini in New York, Boston, and other cities of the United States. The railroad which connects Lakes Ontario, Simcoe and Huron, ninety miles in length. The railroad from Buffalo through Brantford to Goderich, which places Lake Huron in direct communication, over the Western Peninsula, with the Welland Canal and Lake Erie. The Great Western Railroad from Hamilton to Niagara, and from Hamilton to Windsor or the River Detroit, is, next to the Grand Trunk, the most important of our railroads, it is in full working order and carries on an extensive traffic ; all these roads are complete and are in direct communication with the St. Lawrence.

Besides these a number of railroads have been commenced or are under contract, one from Quebec to the back settlements of the Saguenay, another from Quebec to Montreal by the north shore of the St. Lawrence, one to the frontier in the district of St. Francis, from Montreal, one from the Ottawa to Prescott, County of Grenville, one from Brockville to the Ottawa, the "Grand Junction" from Belleville to Peterborough, and from

thence to Lake Huron, a double branch from Port Hope to Cobourg and Peterborough, one from Toronto to Goderich, one from Woodstock, County of Oxford, to Lake Erie, and one from London to Port Stanley on Lake Erie. Several other railroads are in contemplation, for some of which, the Companies have already obtained their charters.

Let us here make a comparison between the St. Lawrence and American routes, as means of transport for passengers and goods, also with respect to their connection with the Western emigration and traffic between the States and Canada.

Let us first of all establish that that route is the shortest and most direct, which, from the north and centre of Europe, leads to the shores of Lakes Ontario, Huron, Michigan, and Superior. From the European ports of the above named sections, all ships direct their course either to New York, Boston or the Gulf of St. Lawrence, uniting at a common centre near Newfoundland, a little to the West of Cape Race, distant from Europe about 2000 miles. It is from this point we should compare the different routes in question.

From thence to New Orleans the distance is 3000 miles, to New York 1,350 miles, Boston 1,200 miles, and to Quebec 1,200 miles.

Thus from the coast of France or England to

Quebec, the distance is	 3,300	miles
Boston, do	 3,300	"
New York, do	 3,450	"
New Orleans, do	 5,100	"

Again, it is to be observed, that for ships coming from the North of Europe there is a shorter passage than that by Cape Race, that is to say, by passing through the Straits of Belle Isle to the north of Newfoundland, in latitude 52°. The difference in the length of the passage is estimated at about 300 miles in favour of the Straits. From the coast of Ireland to Labrador in Canada the distance does not exceed 2,200 miles.

Having thus shewn that Quebec is nearer to Europe than any of the ports in North America as regards the internal trade of the Continent, it remains to be proved that the St. Lawrence route is superior to every other.

Arrived at either of the ports of New York or Boston the emigrant can only reach the west with his baggage by some line of railroad, (except from New York, by a water carriage of about 150 miles by the Hudson River,) which are all more expensive than our water communications, and subject besides to transhipment at every junction of the different lines. I have stated that the emigrant had but one means of travel towards the West in the United States, I mean that their Canals being small and thus

incapable of admitting steamboats, they are unfit to carry passengers at the present era in travelling.

On the other hand, emigrants or travellers arriving at Quebec, with the intention of not remaining in Canada but of going westward, may be carried with all their property to their destination, with all the comforts afforded by large steamers to any of the inland ports without having to set foot on shore except as a matter of recreation in passing through the locks of the canals; and the difference of time occupied in the journey from the American ports by railroad to Buffalo, and that in the voyage to Buffalo by Quebec on the St. Lawrence, is only forty hours, a trifling difference, considering the distance travelled, if we take into account the charge either for the emigrant or for freight.

Again, let us remark that the navigation of the St. Lawrence connects at a number of different points with steamboat and railroad routes, the greater number of which terminate at the American seaports. From this circumstance we can thus, it may be remarked in passing, choose for our produce either the American or the European market, and select further, either water or land carriage. All these advantages are so palpable that when it was proposed in the State of New York, to bring the American Erie Canal as far as Lake Ontario, Mr. Dewitt Clinton, one of their statesmen, opposed it, saying, "All goods for exportation once arrived on Lake Ontario, will, in most instances take the Montreal route, unless our British neighbours are quite blind to their own interests." The distance from Quebec to Buffalo by the river may be taken at 600 miles, and the mean distance from New York and Boston to Buffalo at 540 miles, by the best railroads. Now, we know that the most moderate fares on railroads for long distances are, by emigrant trains, 1½d., per mile for each traveller, and for the first class passage, 3¼d., per mile. The regular charges on the best boats on the St. Lawrence for emigrants, are a little over 1d. for every three miles, and 3¾d., for cabin passengers.

This gives as the price of passage to the West:

From Quebec to Buffalo, for ordinary travellers, £3 6s. 0d., for emigrants £1 2s. 0d.

From Boston or New York to Buffalo, for travellers £3 5s. 0d., for emigrants 27s. 6d.

It must be observed that the charge of £3 6s., for first class passengers on board Canadian steamboats includes meals, which generally from New York or Boston to Buffalo, cost about 6s. more, making the total charge £3 11s. 0d. by the American routes, against £3 6s. by the Canadian route. These differences of fare are not very great, still we must bear in mind that we have instituted the comparison between our first class boats and

the American Railroads, which are most moderate in their charges. Much cheaper passages may be procured on the St. Lawrence, but nothing cheaper can be found on any railroad.

The prices here presented shew that the difference of fare is more in favor of the emigrant than the general traveller. The same difference exists with respect to freight which amounts to much less by the St. Lawrence, and the saving increases with the bulk and weight of the goods to be conveyed.

Below is a comparative scale of the charges for carriage of a barrel of flour by different routes, from Cleveland in the State of Ohio, to the different sea-ports ;

From Cleveland to

	S.	D.
Boston, (by Erie Canal and Railroad)	5	0
New York, (by Erie Canal)	4	0
Portland, (by St. Lawrence and Montreal)	3	6
Quebec, (by St. Lawrence)	2	0

This same barrel of flour, the freight of which, by the American routes, amounts to 5s., delivered at Boston via the States, would only cost 3s. 9d., if sent there via the St. Lawrence and Montreal. From Toronto to Quebec the freight of the same article is on the average 1s. 6d., and from Toronto to New York 2s. 6d. These charges are of course subject to change, but the proportion is always that indicated here. The prices quoted are the ordinary charges of steamers and freight trains. The down freight on the St. Lawrence is something less, as freight vessels descending the river, shoot the rapids, whereas on ascending, they have canal charges to pay.

It has been objected to the St. Lawrence route, that it is only open part of the year, and that we are quite isolated during the remainder. The navigation of the St. Lawrence is generally open by the 27th April or 1st May, and closes about 25th November.

Now, during this period of seven months, its great thoroughfare affords ample passage for all the freight, and as to emigrants and travellers they would do well not to go westward in winter, even should they take Boston or New York as their starting point. The Erie Canal and Hudson River are not open in the spring earlier than the port of Quebec, although the temperature in the neighborhood of the former is higher in winter; but the St. Lawrence has means of its own for getting rid of the ice which covers it.

It has been asserted in books written on the subject of the great highways of which we have spoken, that the navigation of the St. Lawrence

presents more dangers than other routes, and it has been urged as an argument that the rates of insurance are much higher on this route than elsewhere; the latter fact must be admitted and on first consideration it seems to carry great weight, but this is due to other causes than the amount of losses, causes which result from the fact that Assurance Companies are composed almost exclusively of capitalists, who are quite ignorant of the real interests of the trade with which they are dealing. The reader will see further on in the chapter of statistics, the comparative amount of premiums and losses on Marine Insurances. I will now proceed to use an argument of another kind, in favor of the St. Lawrence route which admits of no discussion, but assumes all the authority of past experience.

The year 1848, was probably the most disastrous ever known for the whole world as regards shipwreck; in this year the United States lost 585 sailing vessels, out of 21,000 which compose their merchant fleet, England in the same year 501 ships out of 30,000; Canada out of 2,000 sailing vessels, which navigate the St. Lawrence from Montreal to the Gulf, 1200 of which were from beyond the sea, had only 48 shipwrecks; and (never before nor since that period,) has our river witnessed so many disasters.

By these figures it is proved that in the year of the greatest losses for the whole world, (the best consequently on which to form a comparison,) we have lost 1 ship in 42, and the United States 1 in 35. This then is the evidence we have deduced from the Assurance Companies, to establish the comparative amount of safety on the navigable waters of the two countries.

This constant comparison of Canada with the United States will be excused, when it is reflected that too often in France the credit of all that is done in North America is given to the Americans, a slight error which our amiable neighbours tolerate, with a benevolence quite at variance with their usual habits.

VII.

POLITICAL AND CIVIL INSTITUTIONS OF CANADA.

Constitution of Canada;—Executive power;—Legislative power;—Enactment of Laws;—Duties; of the Legislative Bodies;—Elective principle;—Composition of the Executive Council, Assemblies; Recesses;—Prorogations and Dissolutions of the Houses;—Administration of Justice in Canada East, or French Canada; In Canada West;—Education;—Superintendent of Education;—School Funds;—Management of School Revenue; Universities; Colleges;—Clergy;—Local Municipalities;—Roads.—Reference to several subjects in the following chapter.

The constitution which unites Upper and Lower Canada nnder one sole Government is identical with that of England, with one only exception, which is this, that the sanctioning of any law may be reserved for the supreme authority of the Mother Country whenever the Governor thinks proper. This prerogative is only exercised to maintain the principle of colonial dependence, for in point of fact, the Parliament of England, grants the fullest liberty to the Colonial Parliament and the management and enjoyment of all their revenue.

The Executive power is composed of the Governor, who represents the Sovereign, and of a Council of Ministers who alone are responsible for the acts of the Government, and preserve their position only by possessing the confidence of the two branches of the Legislature. In the event of a collision between the Representative power and the Executive, the latter can dissolve the House and appeal to the people by a new election.

The Legislative power is made up of two Assemblies, of which the Legislative Council, is named by the Crown, by the advice and counsel of the ministers, and the number of which is unlimited, the other the Legislative Assembly is elected by the people of Counties and Towns, and is composed of 130 Members, 65 for each section, the term of whose service expires every four years, and may cease before this period, in case of a dissolution of Parliament. The Legislative Assembly alone has the power to vote the supplies, and any measure involving an appropriation of revenue, must originate in this Assembly.

Other laws emanate either from the Legislative Council or from the Assembly, which bodies alone can consider and amend all Bills. When a Bill or proposed Act, brought up from one House to the other, is amended, the Act is returned to the Chamber in which it originated, who may either agree to the amendments or not, or propose other amendments to the amendments; should both houses concur, the Bill is passed, and only requires the

Governor's sanction to become law; if otherwise, then a conference is arranged between Members of the two Assemblies, chosen as *conferees.* In this meeting the affair is always arranged, if not the Bill would fall to the ground.

The Chambers are the High Court of Enquiry of the Country, and have the right to take cognizance of all matters; and all information asked for by the majority of the Assembly must be given by the Government, or they must resign or appeal to the Country. Questions are decided by a majority of the members present, without regard to numbers, provided there be a quorum. A quorum of the Legislative Council consists of eleven, and of the Assembly of twenty-one. Each chamber is presided over by a Speaker, who gives the casting vote on equal divisions; the Speaker of the Council, is appointed by the Executive, and the Speaker of the Assembly, by the House.

All measures, investigations and other preparatory labours are prepared or carried on by Committees who report to the House. These Committees are either general, that is, composed of the whole House, or special, when composed of a limited number of Members; there are besides these, Standing Committees, who report at different periods on all matters referred to them for enquiry.

It is intended shortly to make the Legislative Council elective, which will be an important change in the constitution, not only as respects their responsibility to the people, but also as regards the relations between the two Chambers, and between the Chambers and the Executive.

The council of ministers which is here called the "Ministry" or "Administration," and whose number is not limited by the constitution, is at present composed as follows:

A Provincial Secretary, whose office is identical with that of Minister of the Interior and of Education.

A Receiver General whose office relates to matters of Finance.

An Inspector General of Public Accounts.

A Commissioner of Public Works.

A Commissioner of Crown Lands,—colonisation, woods and forests.

A Minister of Agriculture, attached to which is an office of Statistics and Patents of Invention.

Two Attorneys General, the Law Officers, of Upper and Lower Canada.

A Postmaster General.

Minister without office, who is Speaker of the Legislative Council.

Of these Ministers five are from Upper Canada and five from Lower Canada.

Attached to the Ministry and retiring with it, but not forming part of it are two Solicitors General, whose duties are connected with those of Attorneys General. All these functionaries must be members of one or other of the Chambers, and there must be some of them in both.

The Council of Ministers are in constant session and assist the Governor with their advice; he presides at all meetings where his decision is required to the measures of the Council, but the Ministry have Committee meetings at which business is discussed and arranged; the Governor is not present at these meetings, etiquette not admitting of any discussion in his presence.

The nomination of all public officers rests with the Governor.

The Speakers of the two Assemblies have the nomination of their own officers except the Serjeants-at-Arms and Gentlemen Ushers; these, receiving the usual commissions are nominated by the Executive, who are generally guided in their selection by the wishes of the Speakers.

Disputed elections of Members of the Legislative Assembly are decided by Election Committees, chosen from the body of the House in virtue of a law to that effect.

Parliament must meet every year, its sitting usually lasts several months and is called a session. It may adjourn for long vacations without affecting the session, but when the labours of the Session are terminated by order of the Governor in Council, it is called a prorogation, and the next meeting of parliament commences a new session. A parliament is the duration of the Assembly from one election to another; after every general election, whether before the expiration of the four years from the issue of the writs (by dissolution) or not, a new Parliament begins. In the interval between the end of one Parliament and the beginning of another, a space of time which should not amount to a year, and rarely exceeds a few months, there is no legislative power in existence. This will suffice to show that our constitution is the same as that of England, our parliamentary rules and practices are exactly the same, and the Houses and members individually enjoy all the privileges secured by these rules in the same manner as all the prerogatives of the Crown are vested in the Governor, who is the Representative of the Sovereign. Changes of Ministry occur as in England, in fact every political movement is here an imitation of what is done at home on a larger scale.

The description we have given of the extensive powers of the Canadian Parliament which affect everything connected with the legislation and government of the country, leads us naturally to allude to a subject which, especially for the French, is a bug bear which keeps foreigners away from all quarters of the British Dominions, that is, the law of inheritance or *Alien Act*.

The Frenchman who wishes to emigrate to Canada need not fear for himself or his family, the unjust operation of this law, nor of the law of primogeniture; these objectionable laws, to which, however, she owes, in a great measure, her agricultural position and the stability of her Government, are unknown in Canada. We may suppose that the colony, possessing the power of legislating on the subject, has taken good care to annul all laws which had a tendency to banish strangers from its territory, emigration being the most important element in the prosperity of so vast a country as this, so rich in natural productions and one which is still so thinly inhabited. The foreigner may be assured of finding in Canada, all those arrangements which will secure to him and to his family, the possession, and peaceful, and uninterrupted inheritance of that wealth which his industry and capital may have procured him, our laws and enactments tending to encourage honest and well disposed emigrants to settle among us.

The judicial power is differently organised in Lower and Upper Canada. Here in few words are the two organisations; with one exception, that in certain cases an appeal against the decisions of the Courts here, may be made to the Privy Council in England.

In Lower Canada, the highest tribunal is called, *The Queen's Bench*, it is composed of four judges, with a Chief Justice as President, but any of whom can act in the absence of the others in certain cases; this Court hears cases of appeal and gives judgment in serious criminal matters which do not come within the jurisdiction of the Police Courts. Another Court composed of ten judges, two of whom are Chief Justices, one for Montreal and one for Quebec, is called the *Superior Court*, and gives judgment *en première instance* in important causes and in appeal, in all cases referred from the Courts below. The third in order is the *Circuit Court*; the number of judges of this Court at the present day is nine, one of whom resides in each of the districts of Kamouraska and Ottawa, two in the district of Gaspé and one in the Circuit of Chicoutimi, in the Saguenay territory; their jurisdiction extends to sums not exceeding £50 currency; in some districts the resident judges exercise in addition, the jurisdiction belonging to other Courts, but only during term. The Circuit judges hold with the justices of the peace, Quarter Sessions to try certain criminal cases.

There is besides an Admiralty Court, the sole judge of which, sitting at Quebec, decides all matters of maritime law. When the inhabitants of a Parish demand it, they may establish among themselves a "Commissioners' Court," which adjudicates on matters of debt only, not exceeding £6 currency. Special Magistrates, without salary, called Justices of the Peace, are appointed among the inhabitants in different

localities, and invested with the power of deciding on all rural and other matters of police.

In Upper Canada, there is a Court of Appeal, composed of the Judges of the Superior Courts of Law and Equity, a *Court of Queen's Bench* with a Chief Justice and two other Judges, a Court of Chancery, with equity jurisdiction, composed of a Chancellor and two Vice Chancellors, a Court of Common Pleas, consisting of a Chief Justice, and two puisné judges. These judges preside at the criminal assizes in the different counties during what are called in England the Law terms. Besides this they go the Circuits. Again, besides the Superior Courts, there is what is called the Heir and Devisee Court. This Court is held by Commissioners, who are judges of the Superior Court, associated with other judges appointed *ad hoc*. The jurisdiction of this Court extends only to litigation, connected with the inheritance of lands held without letters patent from the Crown; again there are, the Probate Court, Surrogate Court, and Insolvent Debtor's Court, whose powers it would take too long to define. There are twenty-nine judges of counties and divisions of counties, who hold terms, and reside within the limits of their respective jurisdictions, they also preside at Courts of Quarter Sessions and Division Courts, to give summary judgment in matters of minor importance. In Upper as in Lower Canada, the reports on judicial proceedings are published, the reporters are salaried and form part of the establishment of the Courts.

The management of matters connected with Education is attached to the office of Provincial Secretary, but he has under his direction, two Superintendents of Education, one for Upper and one for Lower Canada, who are in point of fact the Ministers of Public Education. The Common School Fund, supplied partly by the Government, partly by local taxes, is managed by the authorities of each parish or township. In addition to the Common Schools, there are numerous Colleges and Academies, governed by bodies politic, owing their existence to charters granted by the Legislature, some of which in Lower Canada, date their foundation from the early times of the Colony under French rule.

There are several Universities, among others, the University of Laval at Quebec, McGill College, Montreal, and the University at Toronto. These three Colleges have the privilege of granting, and do grant to numbers of students, university degrees.

In the towns and in several counties of Upper and Lower Canada there are literary Institutions and Associations, and many of the Parishes have small public libraries.

The religious welfare of the people is well cared for. The Roman Catholic Church, which is the most extensive, has a very numerous clergy,

under the direction of several Bishops of whom the Archbishop of Quebec is the metropolitan. The Church of England has also a metropolitan Bishop, several other Bishops, and a large number of ministers, the other Protestant denominations support a clergy, sufficient for the wants of their different congregations. The Protestant clergy, is in part maintained by the profits accruing to them from a grant of land known as the *Clergy Reserves.* What remains of these lands, has been secularised by the Legislature, and the profits limited to the lifetime of the present incumbents. The State pays nothing towards the maintenance of its clergy, the Roman Catholics of Lower Canada support their prelates and curates by payment of a tithe, of the twenty-sixth part of the grain, added to a casual revenue of the Church; the tithe, which is small and only deducted from one article of produce is fixed by a special law to that effect, and only applies to Roman Catholics in Lower Canada.

The local affairs are managed by a Municipal Council, who are elected in turn by rate payers. These corporations have the power of imposing taxes on their constituents, but only for certain purposes. The prevailing system in Upper Canada, for the maintenance of the public roads, is by farming them out to Companies, who, by their charter acquire the right to put up toll-gates at different places, and to charge a certain toll for passing. In Lower Canada, the more general custom is to impose on every land holder an amount of personal labour, proportioned to the extent of his property.

In the following chapter on Statistics, the reader will find allusion to many subjects which more properly belong to the preceding chapters; but in a concise work of this kind, repetition is, as much as possible to be avoided.

It is on this account that many interesting data on our financial and banking system have not yet been furnished; all numerical information, requiring explanation will receive it in the last chapter, in which the reader must be prepared to find much figure work. This is almost an apology for entering into statistics, but it has been said, "No science has "been so neglected as statistics," and I would not willingly incur the reproach of similar neglect, when this work contains so small an amount of information on other subjects.

VIII.

STATISTICS AND GENERAL INFORMATION.

NOTE.—(1.) Census of Population;—By Origin;—By Religion;—By Sections of the Province;—Population of chief towns;—Remarks;—Comparative Table;—Number of Lunatics;—Statistics of Provincial Penitentiary;—Census of Professions, Trades, &c. (2.) Agricultural Census, and of land owned and under cultivation;—Partition of Real Estate;—Division of Fields;—Annual Produce of Land;—Number of Cattle;—Aggregate Value of Produce;—Market Value of Agricultural Produce in 1851;—Comparison with the United States;—Statistics of Education;—Universities;—Colleges;—Schools;—Number of Pupils;—Clergy. (4.) Public Works;—Light Houses;—Wharves;—Canals Slides;—Roads and Bridges;—Cost of these Works;—Report on them;—Tow-Boats;—Railroads. (5.) Finances of the Country;—Revenue and its Sources;—Comparative Statement;—Provincial Ledger. (6.) Trade:—Business of the Ports;—Value of Imports and Exports;—Principal Articles of Importation and Exportation;—Ship-Building;—Banks;—Insurance Companies. (7.) Various Details;—Local Taxes;—Postage;—Currency;—Price of Houses;—Fares by Steamboat and Sailing Vessels, from Europe to Quebec.

The last Census, shewing the population, and the agricultural and industrial condition of Canada, took place in 1851. The reader must not forget that four years work great changes with us, as will be seen by the tables of comparison in the next chapter. For instance, it is a well known fact, that the population of the Province, on the 1st of January, 1855, considerably exceeded 2,000,000: this the reader may take as a criterion for comparison.

I.

CENSUS OF 1851.

Population of Canada, 1,842,265, distributed as follows between the two sections of the Province:

Upper Canada	952,004
Lower Canada	890,261

These numbers are subdivided as follows, into origins and principal birth places:

Franco-Canadians	695,945
Canadians, (not French)	651,673
Natives of Ireland	227,766
" England	93,929
" Scotland	90,376
Continent of America	64,109
" Europe	18,467

The grand divisions of the population into religious denominations are as follows:

Roman Catholics	914,561
Church of England	268,592
Presbyterians	176,094
Methodists	173,959
Free Church	61,589
Dissenters	176,085
No religion	71,334
Jews	351

Lower Canada contains:

Franco-Canadians	669,528
Canadians, (other origins)	125,580
Roman Catholics	746,866

Upper Canada:

Anglo-Canadians	526,093
Franco-Canadians	26,417
Protestants	733,917

Population of the chief towns of Upper and Lower Canada, in 1851, in numerical order:

Upper Canada:

Toronto	30,775
Hamilton	14,121
Kingston	11,585
Bytown, (City of Ottawa)	7,760
London	7,035
Belleville	4,569
Brantford	3,877
Cobourg	3,871

Dundas.. 3,517
Niagara.. 3,340
Brockville.. 3,246
Port Hope.. 2,476

Lower Canada :

Montreal.. 57,715
Quebec.. 42,052
Three Rivers.. 4,936
Sorel.. 3,424
St. Hyacinth.. 3,313
St. John.. 3,215
Sherbrooke.. 2,998

With regard to Quebec, it appears that the *Banlieue* contains about 10,000 souls, in addition to the figures given above.

All these populations have increased considerably, especially in Upper Canada, the rendezvous of British emigrants. The European must not judge of the importance of a town by its population, for taking one population with another, much more business is done in Canada than elsewhere ; for instance, where will it be possible to find a town of 43,000 inhabitants, (that of Quebec in 1851,) whose export trade amounts to £1,600,000 currency, and whose commercial fleet averages 1,000,000 tons.

In the following table will be seen the increase of population in the two sections of the Province since 1763 :

YEARS.	NUMBERS OF PEOPLE.		
	LOWER CANADA.	UPPER CANADA.	CANADA.
1763	70,000	12,000	82,000
1814	335,000	95,000	430,000
1823	427,000	150,000	375,000
1831	512,000	260,000	772,000
1844	699,000	500,000	1,199,000
1848	770,000	721,000	1,491,000
1851	890,261	952,004	1,842,265

There are few States of the American Union in which the increase of population has been so rapid as in Canada, taken as a whole, within a few years, and not one in which it reaches so high a figure as in Upper Canada. I shall give here a table showing the proportionate increase of Canada and the United States during ten years:

Population of United States,		1840	17,067,453
Do	do	1850	23,091,488

Increase 35 per cent.

Population of Canada,		1841	1,090,000
Do	do	1851	1,842,265

Increase 69 per cent.

Population of Upper Canada,		1841	465,357
Do	do	1851	952,004

Increase 104 per cent.

According to the Return from the two Lunatic Asylums of Toronto and Quebec, there were in 1851:

In Upper Canada	288 Lunatics.
Men	150
Women	138
In Lower Canada	153 Lunatics.
Men	80
Women	73

The nu nber of criminals imprisoned in the Penitentiary, 390

For Upper Canada	256
For Lower Canada	133

I shall now proceed to give a very long catalogue of almost all the trades and professions, practised in the Country, with the number of persons employed, give a separate statement for each Section of the Province. This table is better calculated than anything else, to shew the amount of our industry, and to instruct the emigrant and capitalist, when compared with the other statements contained in this sketch. Some notes which accompany it, will point out to those desirous of becoming acquainted with the Industrial condition of the Country, the best use to be made of it. It may be as well to remark that these data touching the employments of the people are not mathematically correct. The incomplete manner in which this

part of the census was performed by those who were entrusted with the duty in 1851, has rendered the labour of correction extremely onerous:—This list may however be very useful.

Alphabetical Table of the personal census of Canada, as regards trades, professions and useful employments.

	Upper Canada.	Lower Canada.
Agents, Brokers and Auctioneers........	281	228
Apothecaries........................	108	26
Artists of all kinds, Architects, Sculptors, &c.	218	259
Armourers........................	53	21
Surveyors	102	76
Barristers and Attorneys..............	302	273
Hotel and Tavern Keepers.............	1,772	443
Stevedores........................	"	163
Bankers	32	11
Hair-dressers	94	30
Jewellers, watch and clock makers......	200	147
Butchers	600	474
Bakers	462	590
Shopkeepers	435	590
Brewers and Distillers................	440	74
Brick-makers and Potters..............	92	50
Caulkers, Rope-makers, Block-makers and Sail-makers........................	125	226
Wool-carders	72	94
Carriage-makers and Wheelwrights......	1,789	584
Chair, Cabinet-makers, and Upholsterers..	1,258	379
Hatters	113	68
Shipwrights, Carpenters, Joiners, &c.....	8,367	8,923
Coachmen, Cabmen, and Carters.........	3,400	3,500
Collectors and Agents................	137	60
Pedlars........................	240	67
Merchants........................	20	51
Clerks in General....................	3,242	2,376
Accountants	88	62
Contractors	718	600
Confectioners	86	76
Constables, Bailiffs, &c................	185	90
Boot and Shoe-makers.................	5,898	3,069
Farmers and Householders.............	86,224	78,264

Dentists	36	8
Clergy	963	620
Editors and Booksellers	83	76
Grocers	475	529
Sub-contractors, for supplying timber	3,000	3,000
Manufacturers (general)	771	346
Tinsmiths	433	323
Founders	471	403
Blacksmiths	4,235	2,840
Hotel-keepers	319	247
Printers	500	400
Working Engineers	337	224
Primary School Teachers	2,422	2,000
Cullers	3	73
Gardeners	279	142
Farm Labourers, (not proprietors)	78,584	63,365
Masons and Plasterers	6,909	1,316
Machinists	685	272
Tradesmen	2,600	2000,
Seamen, Fishermen and coasting Pilots	5,000	8,000
Mechanics and daily Labourers, (not classified	20,000	20,000
Physicians and Surgeons	382	401
Millers	1,830	667
Wholesale dealers	155	589
Notaries	19	538
Artificers in Metals, Copper, Lead, &c	64	59
English Military Pensioners	257	29
Ship-painters	641	600
Dealers in Ashes	84	16
Professors of Universities, Colleges and Members of Learned Professions, (not included above	80	150
Book-binders	51	40
Private Gentlemen	1,116	3,870
House Servants	3,180	5,559
Saddlers	873	273
Tailors	2,662	671
Farmers	561	532
Weavers	1,738	166
Coopers	1,935	473
Veterinary Surgeons and Farriers	46	20

We have shewn that the population of Upper Canada in 1851 was 952,004, and of Lower Canada 890,261. The above Tables, which have been taken from the census of 1851, and which refer to the employment of Males only, give 260,000 for Upper Canada, and 220,000 for Lower Canada in round numbers. Now this is as nearly as possible the exact Male population from 15 to 65 years of age, for each of the sections of the Province.

A comparison being made between the amount of the whole population of each Division of Canada, and that of the adult population, it will be seen, that the number of adults is, comparatively speaking, far greater in Upper than in Lower Canada; this arises from the fact that the French Canadian population increase only by the excess of births over deaths, while in Upper Canada the increase is swelled by immigration.

While on this subject it may be well to give a statement of the inhabitants of Canada classified according to their ages, which cannot fail to be interesting to the attentive observer, and from which many interesting facts as to the fluctuation of the population may be deduced.

Number of persons of both sexes in Upper and Lower Canada.

Ages.	Upper Canada.	Lower Canada.
Less than 1 year	37,732	39,686
From 1 to 5 years	131,380	127,050
do 5 to 10 years	138,726	115,035
do 10 to 15 years	119,263	104,639
do 15 to 20 years	100,053	102,564
do 20 to 30 years	166,852	148,710
do 30 to 40 years	108,992	94,781
do 40 to 50 years	69,542	65,795
do 50 to 60 years	41,621	43,648
do 60 to 70 years	20,356	24,095
do 70 to 80 years	7,156	11,084
do 80 to 90 years	1,746	3,030
do 90 to 100 years	225	407
do 100 upwards	20	38
Ages not given, from error	8,310	9,699

We must here observe that the social position of the people in Upper and Lower Canada is widely different. In the former a disposition to spread themselves over the country and a system of division of labour prevails among the people, in consequence of which, the city population, although nearly equal in the two sections, in Lower Canada is collected in only a few localities, but in Upper Canada it is dispersed through a large number

of small towns. This arises from the difference of character of the predominant race in each section; France and the French originally settled Canada East, England and the English, Canada West.

In the numbers of 20,000 for each section of the Province, classed in the table of occupations and as artisans and daily labourers, (generally,) is comprised all that versatile class of men who are alternately hewers of wood or hunters in the forests, sailors or fishermen, ship carpenters, or artisans of every description, in the shop or the manufactory, and who change their trade with the seasons, or as any particular kind of employment is in most demand.

It must be understood that the number of mariners in the preceding tables applies only to those who man the vessels of our inland or coasting trade, as all sea-going ships are almost exclusively manned by British sailors.

2

AGRICULTURAL CENSUS.

The following extracts are from the census tables of 1851 :—

The total number of acres of land in the hands of different proprietors, 17,939,796 * acres.

Of which in Upper Canada	9,826,417	acres.
do Lower Canada	8,113,379	do.
Under cultivation	7,300,839	do.
Of which in Upper Canada	3,695,763	do.
do Lower Canada	3,605,076	do.
Of the whole amount, there are, lands covered with wood	10,638,957	do.
In Upper Canada	6,130,654	do.
In Lower Canada	4,508,303	do.

Which gives a mean for each person of 10 acres, 4 cultivated, 6 woodland; this average is now exceeded, as acquisitions of land and the extent cleared increase in far greater proportion than the population.

The approximate value of all the lands in the hands of different parties is in round numbers, £67,000,000, currency.

* The acre is rather larger than the arpent, about an eleventh more, and rather less than half a hectare being 0.404.671 hectares.

For Upper Canada	£37,000,000
For Lower Canada	30,000,000

The number of land holders in 1851, was 195,683, the average amount in possession of each holder was about 92 acres, and the mean value of each lot, £340, currency, in round numbers, shewing an approximate mean value of £3 14s., currency, for each acre of land, half cultivated and half in wood.

The lands is divided in the following manner among the holders:

In Upper Canada:

Land holders		99,890
Holders of	10 acres and under	9,976
do	10 to 20	1,889
do	20 to 30	18,467
do	50 to 100	48,027
do	100 to 200	18,421
do	over 200	3,120
		99,900

Lower Canada:

Land holders		95,823
do	of 10 acres and less	13,261
do	of 10 to 20	3,074
do	of 20 to 50	17,409
do	of 50 to 100	37,885
do	of 100 to 200	18,608
do	of over 200	4,585
		94,822

In 1851, the lands in Upper Canada were:

2,274,746 acres ploughed.
1,365,556 " pasture.
55,461 " gardens.

In Lower Canada:

2,072,953 acres ploughed.
1,502,355 " pasture.
30,209 " gardens.

The following table will shew the yield of different kinds of produce in Upper and Lower Canada:

PRODUCE.	BUSHELS.	
	UPPER CANADA.	LOWER CANADA.
Wheat	12,675,603	3,480,343
Barley	625,355	764,144
Oats	11,186,161	10,248,679
Peas	2,872,413	1,351,074
Indian Corn	1,686,441	343,103
Rye	479,615	390,220
Buck-wheat	639,264	530,417
Potatoes	4,987,475	5,092,698

It must be borne in mind that although the amounts in this Table are given in bushels, the returns from Lower Canada were made in minot which are an eighth larger than a bushel, so that to shew a fair proportion, an eighth should be added to the Lower Canada produce (1). Upper Canada raises most wheat, most Indian-corn, and most peas; Lower Canada most barley, most oats, and most potatoes.

Table exhibiting amounts of other produce.

PRODUCE AND MEASURES.	UPPER CANADA.	LOWER CANADA.
Tons of hay(2)	681,782	965,653
Pounds of hemp and flax	50,650	1,867,016
Yards of linen	14,995	889,523
Yards of flannel	1,828,633	1,836,964
Pounds of maple sugar	3,581,505	6,190,694
Gallons of cider	701,612	53,327
Pounds of tobacco	764,476	488,652

(1) The author has not time to make these calculations.

(2) The ton of hay weighs 20 cwts.

Table of the number of Cattle.

NUMBER OF CATTLE.	UPPER CANADA.	LOWER CANADA.
Horses	203,300	182,077
Sheep	968,022	629,827
Draught oxen	193,982	111,819
Young cattle	254,988	180,317
Cows	296,924	294,514
Hogs	569,257	256,219

It would be impossible to give a detailed statement of the agricultural produce, we shall, however, give the aggregate annual value, of a large number of articles quoted from the returns of 1851.

Total Value of all grain................	£ 5,624,268 cy.
do cattle..................	10,947,537
do of the following articles:	
Hay, seeds, hemp, flax, hops, wool, tobacco, sugar..........................	3,965.012
Total value of the following:	
Butter, cheese, cider, flannel, linen, salt beef, salt pork....................	2,901,937
Total value of potatoes............	630,011

The following are the prices assigned to different articles in 1851, on which to found an estimate; all these articles have increased enormously in price, still these tables may be assumed as a guide to the mean prices of the articles contained in it for large quantities of middling quality and inferior, for average years.

Horses	£12	10	0 cy.
Cows....................................	3	15	0
Oxen....................................	6	0	0
Young cattle............................	1	10	0
Sheep....................................	0	7	6
Pigs	1	0	0

Wheat per bushel	0	4	0
Rye	0	2	1
Barley	0	3	0
Oats	0	1	0
Indian-corn	0	2	6
Peas	0	3	0
Potatoes	0	1	3
Seeds	0	10	0
Hay (per ton)	2	0	0
Hemp and flax per lb	0	0	3
Hops do	0	1	0
Wool do	0	0	6
Tobacco do	0	0	6
Sugar (Maple) do	0	0	2
Butter do	0	0	7
Cheese (Country) do	0	0	6
Cider do per gallon	0	0	2
Flannel do per yard	0	2	0
Coarse Linen do	0	1	3
Salt beef, per barrel	1	10	0
Salt pork, do	2	10	0

The total value of the articles of produce detailed herein amounts to £24,068,765 currency.

For Upper Canada	£13,822,863 cy.
do Lower Canada	10,245,902

To this again is to be added the value of certain other articles, such as, poultry, eggs, fruit, honey, and vegetables. We should also place to the credit of Lower Canada, the revenue arising from the oil, and skins of cetaceous animals, and from fish taken in the Gulf, amounting to about £1,000,000; and another sum of about £250,000, the value of furs obtained principally in the Saguenay territory.

It must be observed that the growth of wheat has lately been subjected to two destructive scourges, which however, are now disappearing; the Hessian fly, which has devastated the whole of Lower Canada, and the weevil in some parts of Upper Canada.

The amount of wood exported will be found below, in the paragraph on commercial statistics, it reaches £2,000,000 currency, in round numbers, and we may put down the whole produce of the forests, home and foreign consumption included, at £3,000,000 currency: Lower Canada supplying more timber than Upper Canada.

If we stop for a moment to compare the produce of Canada with that of the States, it will be seen that the two countries are on nearly an equal footing in proportion to their population, but that Canada has the advantage, as to the amount of produce in proportion to the land under cultivation, which shows in Canada, more recent settlements taken as a whole, but a more genial soil, and a greater amount of natural resources.

Population of the States in 1851	23,263,488
Do Canada do	1,842,265
Acres occupied in the States	303,078,970
do do Canada	17,939,796
Value of the articles detailed above, less the forest produce for the States	£339,239,558
For Canada	24,068,765

Which gives for Canada rather more than £13 cy. per head, and for the United States £14 cy. a head; but if we add to the produce of the United States the other articles of their production, and also add to the Canada returns, the productions of the woods and the fisheries, the development of which employs in Canada so much larger a proportion of hands, (*vide* table of trades, &c., number of labourers and lumbermen,) then the balance would be much in favor of Canada.

The most evident proof of this assertion is, that the produce of cultivated land in Canada amounts to 24s. per acre, while in the United States it does not exceed 22s.

3.

STATISTICS OF EDUCATION.

Upper Canada is much better provided with common elementary Schools than Lower Canada; but Lower Canada contains a greater number of collegiate and classical institutions. The following tables give the enumeration for the year 1853:

For Upper Canada:

	Numbers.	Pupils.
Colleges	8	751
Normal Schools	2	545
Grammar Schools	98	2,900
Common Schools	3,010	180,000

For Lower Canada:

University	1	400
Colleges	10	2,000
Academies, Convents' and Friars' Schools.	100	20,000
Common Schools	2,300	100,000

The Laval University, the seat of which is at Quebec, requires a special notice, from the peculiar privileges secured to it by Royal Charter, from the number of its Professors of the Sciences, Medicine, Law, &c., the number of its students, and the valuable collection of books, works of art and philosophical instruments, which it contains. This institution is now the Alma Mater for classical studies, of the youthful population of French origin.

We have stated above, that literary associations, scientific and mechanics' institutions, exist in all the towns and in many country places, and that public libraries are a useful ornament in nearly every township and parish. Besides these sources of instruction there are about 100 publications in the shape of periodicals and political newspapers, of which about thirty are published in Lower and the remainder in Upper Canada.

We shall here give some statistical information respecting the clergy, taking first in order the most numerous, those of the Roman Catholic Church.*

The British Provinces of North America are comprised in one Provincial Catholic Archbishopric, of which Quebec, where the Councils meet, is the See.

This clergy in Canada is composed of the Archbishop of Quebec, eight Bishops and 607 Priests.

The Church of England has four Bishops and 252 ministering clergymen.

The other Protestant communities, reckon 895 ministers, and divide Canada into Districts, Presbyteries, &c., for the convenience of their different Churches.

4.

PUBLIC WORKS.

Our great Public Works, completed or in progress, are of various kinds.

* Note.—This information should be inserted under this title, because the Clergy are not only the expounders of morality, but because, in Lower Canada at least, they have identified themselves with education, which has been carried out under their sole auspices.

The first of these which present themselves to the notice of the stranger on entering the Gulf of St. Lawrence, are the Light-houses, which comprise two distinct classes; those in the lower part of the river, which are the least numerous, but of a superior and expensive kind, and those in the interior, from Quebec to the Western Lakes.

The total cost of the first has been about £60,000 cy., of the latter £90,000 cy.

The first class are placed as follows, to the number of seven: two on the Island of Anticosti; one on the Point des Monts, in the County of Tadousac; one on the little Island of Bicquet, County of Rimouski; one on Green Island; one on Red Island, County of Temiscouata, and one on the Pillars, County of L'Islet. Those on Bicquet and the Pillars have revolving lights, and that on Bicquet is provided with a 36-pounder, which is fired every half hour in foggy weather.

These Light-houses, from their great solidity and style of building, are perfect monuments.

There is also a floating light in the St. Roch traverse, opposite the County of L'Islet.

Four new light-houses are in course of construction; two in the Straits of Belle Isle, one on Anticosti, and another at Point Gaspé, all of which it is intended to light with Frenel's lanterns.

The light-houses for the benefit of the inland navigation are too numerous to describe, some of them are on floating barges.

The second class of public works are the artificial harbours the total cost of which has been £450,000 cy.

There are seven in Lower Canada, the aggregate cost of which was about £150,000 cy., including the light-houses erected on them; some of them are not quite complete. The others are nearly all in Upper Canada; their cost has amounted to about £300,000 cy.

Our Canals, including the Rideau, form a complete route of communication; the total cost amounts to £5,085,000 currency, distributed as follows:

Rideau Canal	£1,500,000 cy.
Welland do	1,500,000
Gallops do	300,000
Cornwall do	400,000
Beauharnois do	600,000
Lachine do	480,000
Chambly do	140,000
St. Ours Dam	27,000
St. Anne do	23,000
Desjardins Canal	30,000
Burlington do	850,000

In addition to the above sums we have laid out £88,000 for deepening Lake St. Peter; £15,000 for improving the Rapids, and have effected a loan of £84,000 for improvements on the Grand River. All these latter works are completed. The Gallops, Cornwall, Beauharnois and Lachine Canals, are known as the St. Lawrence Canals, on account of their forming a distinct system intended for the navigation of large vessels, the locks being of large dimensions and capable of receiving vessels of 400 tons burthen.

Slides for bringing down wood in our large rivers, have been built on a vast scale on the Rivers Ottawa, St. Maurice and Trent; their total cost amounts to £150,000.

The expenses of completing first class roads, with well built bridges have amounted altogether to £798,000 currency.

For Upper Canada	£530,000 cy.
For Lower Canada	268,000

The total amount expended on the above mentioned Public Works in Canada will stand as follows, viz:

Light Houses	£ 150,000 cy.
Harbours and Wharves	450,000
Canals	5,085,000
Deepening the Channels of Rivers	182,000
Slides	150,000
Roads	798,000
Total	£6,815,000

From this is, however, to be deducted the sum of £1,500,000 currency, the cost of the Rideau Canal, expended by the English Military Government.

The revenue derived from all these works by the Province is already large and is increasing rapidly every year.

Below is a statement of the above Revenue from 1848:

1848	£46,493 cy.
1849	56,200
1850	65,772
1851	76,216
1852	84,602
1853	95,814

Private Companies, which without having the monopoly, have however, peculiar emoluments from the Government, maintain a regular line of tow boats; in return for this advantage, their charge for towage is fixed at a certain rate which they cannot exceed on pain of forfeiture of their contract.

Ocean lines of large screw steamers, make regular passages between Liverpool and Quebec in the summer, and between Liverpool and Portland (State of Maine,) in the winter. The owners receive pecuniary encouragement on conditions calculated to serve the public interests.

We will now devote our attention to *Railroad Statistics.* There are now in Canada, about 3,060 miles of Railroad altogether, either projected, in progress or completed, without including the long contemplated line from Trois Pistoles to Halifax by the Bay of Chaleurs, which would make Halifax in Nova Scotia, our great winter port, and would form a complete line of communication from the Gulf to the Western extremity of the Province, side by side with our great inland navigation, and most effectually supplying its loss during the winter months.

Our Railroads, of which we have given the total length, are at present in the condition shewn below as regards their progress towards completion, which has advanced rapidly since the completion of the Canals.

Complete	700	miles.
In progress	2,016	do
Chartered	344	do
Total	3,060	

It would be difficult to give the average cost of our finished railroads but we may assert, taking into account the high price of labour and materials, that it would be impossible to build a first-class road, (I mean as compared with American roads, which are generally a single track, and the finish and solidity of which are inferior to the English and French roads,) for less than from £9,500 to £10,000 currency per mile, unless under most favourable circumstances as regards locality, pecuniary facilities and management.

I shall now give a statement of the average cost per mile of some roads or parts of roads, quite completed, the amounts being in round numbers and in French currency:

Grand Trunk	217 miles.	190,000 francs.	£ 9,500 cy.
Great Western	229 "	220,000 "	11,000 "
Ontario and Simcoe	66 "	150,000 "	7,500 "
Buffalo and Goderich	75 "	100,000 "	5,000 "
Total length	887 miles.		

The average cost as exhibited by this table is £8250 currency per mile, that is taking each road to represent the whole, but when the length of each route or the total cost is taken into account, then the mean cost rises to £9,300 per mile.

The three first of the above mentioned roads, viz.: the Grand Trunk, the Great Western, and the Simcoe, have each a share of the Provincial guarantee, that is to say, the Provincial Government secures to the shareholders of the Companies the repayment of a certain part of the capital laid out in the construction of the roads, should the speculation not prove remunerative, and as a security for the money thus advanced, the Government becomes a privileged creditor by a mortgage on the whole property of the Company. Should the road pay, and the investment prove profitable to the Shareholders, then the latter are bound to make payment of the debentures issued in their favor and in circulation in the money market. In this case the province has nothing to pay, but in the opposite case the province would have to redeem their debentures and become proprietor till the amount of their loan was made good. By a law which regulates this transaction, the amount which the Executive is empowered to secure to each company, is limited. The total length of the three roads to which this guarantee has been accorded, is 1,434 miles.

The maximum amount of debentures which the Province can be called upon, first to issue, and afterwards, to pay in part, should the Company become losers, has been fixed at £5,000,000, currency.

The capital invested in our railroads when the 3,060 miles are completed may be set down at £16,000,000, currency, the capital now employed amounts to about six millions currency.

To the £16,000,000, above mentioned, is to be added £1,500,000, the probable cost of building the Victoria Bridge over the St. Lawrence.

5.

FINANCE.

The revenue of the province for the disbursements of 1854, amounted to, £1,423,520, currency, or about £1,250,000, currency, net.

The expenses of the civil list, including the expenses of collecting the revenue in 1854, amounted to £939,534, currency. The unexpended balance this year has been appropriated to the public works which were either in progress or newly commenced.

The different sources of the revenue are as follows:

Customs	£1,115,000
Excise	20,000
Bank Imposts	25,000
Public Works	100,000
Militia Fines	4,020
Casual Revenue	20,000
Law Fee Fund	4,500
Territorial	100,000

Below is given a statement of the revenue for 1849, to shew the improvement that has been made since that year, in which we entered into those great financial speculations, which were the means of relieving us from the burthen imposed on our money market by the great public works which being unfinished yielded no return.

Revenue of 1849:

Customs	£450,000
Public Works	50,000
Excise	30,000
Territorial and other	44,640
	574,640

The Government has no bank of its own, the revenue is deposited as soon as received, in the public banks, and yields a certain amount of interest, when the Minister of Finance has decided on not withdrawing the monies for a stated time; in that case a consolidated fund is formed, which remains in the bankers' hands, who pay interest at the rate of four per cent. till the money is required, in which case sixty days' notice of withdrawal must be given; sums are occasionally deposited for a stated period, but these cases are exceptions. Thus in 1854, on the 1st October, we had the following amounts at disposal:

Bank of England	£ 229 cy.
Glyn, Mills & Co., London	12,623
Baring Brothers, do	1,890
Bank of Upper Canada	302,008
Do Montreal	8,575
Do North America	76,585
People's Bank	59,573
Midland District Bank	111,783

Quebec Bank	1,271
Montreal Savings, Bank	11,000
Gore Bank	11.085
City Bank	40,586
Total	£235,298 cy.

The interest paid on deposits was:

For 1852	£13,135
For 1853	10,208

The Grand Provincial statement of our finances, shewed their state to be as follows on the 1st of August, 1854:

Debit side.

Provincial works	£5,080,273 cy.
Grand Trunk Railway Company	1,102,056
Guarantees on other roads	1,064,582
Municipal Loan	851,616
Clergy Reserve Fund. Indian Fund. School Fund. Other Funds	794,668
Cash, and investments in the Bank of England, & English Funds	1,500,000
Miscellaneous items	605,198
	£10,998,393 cy.

A few words will suffice to explain these different items. The first explains itself: it consists of sums expended on public works. The second and third are made up of sums due for advances made to railway companies to pay expenses as the work progresses, and guaranteed as above stated. The fourth is produced by a law which authorizes municipalities to require from Government the negotiation of their local debentures, the municipalities paying annually into the hands of the Receiver General the interest on the sums thus negotiated by him in the name of the Province, besides a sinking fund at the rate of six per cent. for twenty-five years. The fifth is formed of sums received for the sale of lands reserved by an old law for the Protestant Clergy, and which the Receiver General is bound to give an account of, to the beneficiaries.

The Indian Fund, and School and other funds, composing the sixth, seventh and eighth items, are likewise special funds, created in connection with the public domain, and which the Minister of Finance must give a special account of. These items are carried to the debtor and creditor side as balances; as also the ninth item, made up of moneys deposited to order, and entered as cash in hand, moneys placed out at interest, redeemable at sixty days, and the sum in English Consols, devoted to the reduction of our debt.

In order to meet these obligations as they become due, we have the following on the credit side of the account:

1. Loan on the Imperial Guarantee..............	£1,825,000 cy.
2. Debentures payable in London..................	1,727,568
3. do do in Canada........................	827,554
4. Redemption of the Public Debt.....................	488,830
5. Issue of Debentures in favor of the Grand Trunk Company, authorized by law	1,102,056
6. Debentures issued in virtue of other laws.......	2,112,432
7. Special funds of Clergy Reserves, Indian and other funds.........................	794,668
Part of the Consolidated Revenue Fund for the current year, and the Sinking Fund............	1,500,000
From various sources	620,285
Total	£10,998,393 cy.

The three first items are made up of loans made by us to meet that part of the first item of our debtor accounts, which our revenue does not pay; they form our positive debt, which diminishes by the deposit of our instalments, of which the next article, No. 4, is an example.

The fifth and sixth articles form our collateral debt, and are resources established to meet various exigencies, which we hope to cover by the profits produced by the employment of the capital. For instance; the interest and sinking fund, paid in by the Municipalities will redeem the debentures issued in their favor. As a security from the railways, we have a privileged mortgage on them.

The seventh item relates to the revenues of lands reserved, as has been already explained, which exactly meet Nos. 5, 6, 7 and 8 of the debtor side.

The rest explains itself.

On the first of January, 1855, our direct debt was...	£4,350,000
Debentures on railroads, issued	3,386,500
Municipal Debentures issued........................	1,172,916
At the same date, our Sinking Fund, created by the purchase of English Consols at 3 per cent...............	451,262
To show the prosperous state of our finances, we may state that in 1849 the cost of public works carried to the balance sheet of that year, only exceeded the direct debt by..	565,000
The cost of the same works carried to the balance sheet of 1854, exceeds the direct debt of the present day by..	730,000

And the Public Works are higher in value than the amount set down.

The Sinking Fund, which in 1849 was only £53,533, amounts now to £451,262.

The item, *redemption of debt,* in 1849 was only quoted at £100,000, whereas, in the balance sheet of 1854, it is raised to £488,830.

Our Debentures stand highest on the English money market. Our 6 per cent. Sinking Fund, redeemable in twenty-five years, commands a high premium, and sometimes reaches 17.

6.

COMMERCE.

It may be right to give first a statement of the number of arrivals and departures from our different ports, both sea and inland. The year chosen for this purpose is the last of which complete returns have been published by the Customs Department, namely, 1853.

Total number of vessels from sea, and entered at the following ports: 1,798.

At Gaspé..	280
Quebec...	1,300
Montreal..............	218

Total tonnage, 622,579 tons.

Vessels sailed, 1821:

From Quebec 1400, and the remainder from Montreal and Gaspé.

The tonnage of ships sailed was 658,853 tons, making a total of entered and sailed, of 1,281,432 tons.

Of the vessels which entered port 66 were foreign.

The total number of vessels which passed through our Canals, whether up or down was 20,406, with a total tonnage of 2,138,654 tons.

71,000 tons of flour and 100,000 tons of iron passed through the Welland Canal.

The whole value of our imports for 1853 was......	£7,895,359 cy.
Exports..	5,945,752
In 1850 the imports were only......................	4,245,517
Exports..	3,990,428

We must here remark that for the principal article of our export trade, *i. e.*, timber, the value is set down at the price at which it is produced, not at the selling price, which is of course considerably higher.

The port of Montreal receives the largest freight. The value of the goods entered in 1853, was £3,381,539, currency.

The port of Quebec has the largest export trade, it amounted in 1853 to £2,443,457. In this account is not included the value of newly built ships, a table of which is found below.

This last description of export was valued in the same year at £1,165,056, currency.

Below is a list of those articles which are imported in the largest quantities, with the total value of importation of each kind of article, for 1853:

Raw Sugar..	£264,919 cy.
Tea..	390,105
Manufactured Tobacco...............................	106,794
Cotton...	1,315,635
Iron Manufactures..................................	648,720
Linen..	133,414
Woollen Goods......................................	254,255
Bar and Sheet Iron.................................	310,805
Railway Iron.......................................	343,593
Books..	103,245

Chief articles of exportation, with their values, in 1853:

*Produce of Fisheries..............................	85,000
do Forests...	2,355,253
Animal produce.....................................	342,631
Agricultural Produce...............................	1,995,194

*Note.—To give an idea of the Gulf Fisheries, in the years 1847–48,532,711 barrels of mackerel were received in the Ports of the State of Massachusetts, almost all of which were taken in the Gulf of St. Lawrence.

Below is the number and tonnage of the ships built and registered in the whole Province, in 1853:

Ships	200
Tonnage	61,512 tons.

Add to this the number of vessels built in the Province, but not registered at the Customs:

Ships (or small craft).	84
Tonnage	8,769 tons.
Grand total of vessels	284
Total tonnage	70,281
Under this head we find for Quebec, 50 vessels	49,541 tons.
Kingston	2,008 "
Gaspé	1,583 "

The rest have been built at different parts of Upper and Lower Canada.

BANKS.

The principal incorporated Banks are the *Bank of British North America*, (Branch,) the *Upper Canada, Montreal, Quebec, City, Midland District, Gore* and *People's Banks.*

The general statement of the affairs of the above institutions for 1853, mas as follows:

Debtor side	£4,931,507 cy.
Credit side	7,155,005.

The principal Savings Banks in 1853, were the

Hamilton,
Montreal,
Montreal (Provident Savings,)
Northumberland and Durham,
Quebec (Provident and Savings.)

The sums deposited in these Banks in 1853 amounted to £207,304 currency, of which $\frac{19}{21}$ were distributed among the three Banks of Montreal and Quebec.

The principal Insurance Companies (I say principal, because several of these institutions sent in no account of the state of their affairs to the Department of Statistics,) are

1. The British American (Fire and Life,)
2. Canada (Life,)

3. Mutual,
4. Kingston Marine Insurance,
5. Ontario do do,
6. St. Lawrence do do,

The amount of property insured against fire and marine risks was, as exhibited below, for the offices, 1, 4, and 6 only, the other amounts have not been given in complete.

Value of property insured against fire......	£1,093,814 cy.
Premiums..............................	9,726
Losses by fire in the year................	6,327
Value of Marine Insurance...............	602,942
Premiums received......................	6,925
Losses................................	3,282

It may be well here to draw the attention of the reader to these figures, as shewing the comparative risk attending navigation as connected with the trade of Canada.

By a law called the "New Banking Act," extended privileges are granted to Companies wishing to establish Banks, they being obliged as a security for their solvency to deposit provincial debentures in the hands of the Receiver General. The amount of these deposits on the 1st January of this year, was £201,125, being the gross amount of capital of all the Banks that have taken advantage of this system.

The incorporated Banks pay a tax of 1 per cent. on their paper issues. In 1853 this tax produced a revenue of £23,053. The highest amount it had reached in previous years was £18,950, in 1852.

7.

General information.

We wish here to collect together several little items, omitted or deferred, and addressed more particularly to emigrants. We enter on the subject without any special dedication of this paragraph.

Local taxes are much higher in Upper than in Lower Canada. In Upper Canada the Municipalities take charge of the roads, pay the juries, and meet several other expenses, while in Lower Canada the people are taxed for education only; the public works are performed by personal labour, under the superintendence of the Municipalities. The system in Upper Canada, is, in this respect, better on the whole, although it has been abused in some of the Municipalities.

The postage on letters is 3d. currency, over the whole province, for any letter not weighing more than half an ounce, (the charge increasing with the weight.) The postage on books or pamphlets by the mails, is very cheap. The exchange with England ranges from 20 to 22 0/0.

I have given here a table of the value of the current money of the Province, the pound, Halifax currency, consisting of 20 shillings at the same rate, and being about the same value as a French Louis d'or.

COINS.

ENGLISH.	£	s.	d.	AMERICAN.	£	s.	d.	FRENCH AND SPANISH.	£	s.	d
Sovereign	1	4	6	Eagle	2	10	0	Crown	0	5	6
English Crown	0	6	1	Dollar	0	5	0	5 franc piece	0	4	8
Do Half C'n	0	3	½	Half Dollar	0	2	6	Spanish dollar	0	5	0
Shilling	0	1	3	Dime	0	0	6	Pistoreen	0	0	10
Six pence	0	0	7½								

A settler's hut costs from £5 to £25.

A good farm house from £75 to £300.

A good barn generally costs from 20s. to 30s., the lineal foot; thus a barn, 40 feet by 30, will cost from £40 to £60; a barn 200 feet long, which is a common size here, will cost from £200 to £300.

A temporary barn for a new colonist may cost from £5 to £10.

Workmen's wages vary from 3s. to 5s. a day of ordinary labour. Tradesmen earn from 5s. to 7s. 6d. In 1853-4, wages were higher in consequence of the great public works which were then in progress.

Lands with standing woods, well situated, and near to any settlement, are worth at least 15s. an acre, and private sales of wood land have been made as high as 40s. Lands in the Crown Domain, of which nearly all wild lands form a part, are sold at low or almost nominal prices, varying from 1s. 6d., to 3s. 6d., and 8s., these lands are sold on very easy terms. Land is much higher in Upper Canada than below; the population being exclusively British, the greatest part of the emigration from the United Kingdom is directed there and the demand raises the value.

The best route for emigrants is by Quebec, to which port the price of a passage from Liverpool, for the working classes, varies from £3 to £5 in sailing vessels, and costs about £7 10s. in steamers.

In all our ports and cities there are emigrant agents who give all necessary information to emigrants; and there are Hospitals, in which, if sick, they are treated gratuitously, with kindness and attention.

CONCLUSION.

"I have," said a Canadian, "visited many foreign countries, and I have seen many more picturesque and more abundant in wealth, but I have never seen one which ever gave me cause to regret that it was my lot to live in Canada."

"Those who would go to settle in Canada," said a traveller, "may be sure of finding in the towns and old settlements, all the comfort of the first cities of Europe; and in the newly opened country, a vast field for industry, and a sure return for their labour, especially if they bring with them a moderate capital."

The author is decidedly of the same opinion, and this study of his country has made him love it more; the conclusion he has come to, as regards those who wish to leave Europe to settle in America, is this, that few countries offer a fairer prospect for the future, to the Emigrant and his posterity, more especially to the agriculturist, if he is wise enough to remain one. It is not our intention here to advise those who can enjoy their ease at home to come to this country to seek a fortune. Far from it. They might have cause to fear that punishment would overtake them, for despising that moderate fortune which it had pleased Providence to grant them. Besides, brilliant and rapid fortunes are not more common in America than in Europe; but there is certainly more room and a better field for industry, though Canada is not a land of plenty, flowing with milk and honey. A man leaving Europe, directing his steps to America, or to any other part of the world, with the idea of making a large fortune in a short time, stands an excellent chance of being disappointed. The Emigrant compelled by adverse circumstances to leave his country, must have seen enough of the rough side of life to make him entertain more sober aspirations than these. But, let us repeat once more, the poor industrious man, the intelligent and honest man, the capitalist (however small his means,) whose industry is fettered by the difficulty of finding secure investments for his capital—all these will find what they require in Canada, and much better in many respects than elsewhere. The soil is boundless and fertile, Nature has already provided an abundant return in the forests, which the settler can at once turn to account. The climate is remarkably healthy, the natural productions abundant and various, the scenery beautiful and majestic, and all that is wanting is the stout arm of the laborer and the influx of capital.

We will now answer a question which naturally is asked by all intending emigrants. Where are we to go in your immense territory? Which is

the best direction to take? In all sincerity I reply: Go where you will, all places are nearly alike, some have one advantage, some another. Everywhere you will find a safe asylum, but I may as well frankly state that emigrants speaking the English language only, and Protestant emigrants, would do better to settle in Upper Canada, and French Catholic emigrants would find it more congenial to their feelings to remain in Lower Canada. The Frenchman, Belgian or French Swiss, will find themselves as it were in their own country in Lower Canada, especially those from Breton or Normandy. The Catholic finds every parish church surmounted with a fine steeple, bearing the cross he has been accustomed to see. Again, the Yorkshireman or Highlander may fancy that his native county has been transferred to Upper Canada. Emigrants from the British Isles have learnt this, for it is always towards Upper Canada that they direct their steps. Lower Canada has not since the Conquest received fifty families of French origin, and it is surprising how its population has increased to its present figure. This extraordinary growth of the French Canadian race, is perhaps unequalled in the history of the world, and moreover it is a fact which goes to prove the high moral and sanitory condition of the people.

The reader will observe in these remarks that the principal object of this work—which merely expresses the sentiments of the Government that called it forth—is to attract emigration to this country; and that, with a friendly feeling towards Europe, which has a superabundant population, and equally so towards Canada, where the available labor does not suffice for the work.

Reference has often been made to capitalists; and indeed the man of business, who studies this work and the descriptive catalogue of the Paris Exhibition, about to be published, will perceive that there are means of making in Canada the most advantageous investments of capital; more especially in schemes for rendering available the natural riches of the soil, the forests, and the waters, resources which, it may be safely said, Canada possesses to a degree not exceeded in any other country in the world.

The question of emigration to Canada may present weightier and more important features than the simple welfare of the emigrant or the country; but the limits of this work do not allow the consideration of questions of so high an order, which affect England as a power and a mother country, and the French as a race, and as allies of the former. I shall content myself with saying that their interests are one and identical, so far as Canada is concerned.

DESCRIPTIVE CATALOGUE

OF THE

PRODUCTIONS OF CANADA,

EXHIBITED IN PARIS IN 1855.

DESCRIPTIVE CATALOGUE

OF THE

PRODUCTIONS OF CANADA

EXHIBITED IN PARIS IN 1855,

BY

J. C. TACHÉ, ESQ.,

COMMISSIONER FROM CANADA TO THE UNIVERSAL EXHIBITION.

(*Translated from the French*)

PARIS,

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1855.

BRIEF SKETCH

OF THE

CANADIAN EXHIBITION.

The Canadian exhibition in London, in 1851, was as successful as could be reasonably desired when we consider the infancy of the country, the inconsiderable number of the population, and the difficulties arising from its remoteness from the continent of Europe.

Sixty prizes and honorable mentions, obtained in the different classes, a special report by the jury on the class of minerals, by which the Canadian collection was placed at the head of all the others, and stated to be *superior to the exhibition of minerals by all the other countries* bore witness to its complete success to the full extent of our expectations.

The country was satisfied, but a number of exhibitors, to whose individual efforts the success of the exhibition is due, had suffered considerable losses, and the results to the commercial interests of the country were not proportioned to the general calculation, from the circumstance, that, except as regarded the minerals, the zeal and devotion of individuals had been alone depended upon, and that spirit of unanimity so important in the selection of articles for exhibitions of that nature, had not been brought to bear upon the labors incident to the formation of the collection.

Profiting by the experience acquired, and with the desire of seeing Canada take part in the noble spirit of emulation which attracted all people to Paris—the Executive Committee charged with the management of the matter, determined to give that national and general character to the Canadian section of the Universal Exhibition of 1855, which was wanting to the exhibition of 1851.

To preserve to itself every freedom of action, the Committee determined that all the articles, selected by the juries of admission, should be purchased by the Committee, and forwarded to Paris at the expense of the Province, but in the name of the contributors, who were to retain the title and the advantages of exhibitors. From this it will be seen, that the original idea was to set the country in the place and stead of individuals, and thus to evidence to the people of other lands the resources of the country rather than the skill of its inhabitants, and the wisdom of such a measure is at once apparent, applied to a country abounding in natural wealth.

But although the object in view was principally to represent the resources offered by the country, the Committee on the other hand deemed it their duty, not to neglect the opportunity of shewing to the European public, that the Canadian heavens do not refuse to those over whom they shed their light, those talents which originate, bring to perfection, or carry on, the different arts and manufactures; and if we may be permitted to believe and repeat the flattering testimony expressed day after day by the visitors of the annexe, those efforts have resulted in certain success. Canada has forwarded to the Paris Exhibition, articles belonging to all the classes contained in the catalogue of the Imperial Commission, with the exception of the 19th and 21st, which relate to cotton and silk manufactures. These do not exist in Canada, with the exception perhaps, of some few establishments, which are comparatively unimportant.

The three first classes, viz : those relating to mineral and agricultural wealth and the produce of our forests, are the divisions in which Canada will more specially shine, if shine it do at Paris. The mineral productions, contributed by nearly eighty exhibitors, are the most numerous; they are classified in the order of their application in the arts, and are sufficiently complete, to give an idea of the abundance of this class of productions, and at the same time to give an insight into the geological formation of the country. It may be said, that with the exception of coal, Canada contributes every species of earths, metals, and mineral substances, which constitute the basis of the various metallurgical manufactures, or serve as materials for building: in this latter class the marbles and cement must not be forgotten.

These sources of wealth have as yet hardly been rendered available, owing to the want of capital and labour: the Province has, as yet only commenced operations in these various branches of industry.

The exhibition of Canadian timber, it is reasonable to believe, will prove that its inexhaustible forests, extending over nearly 360,000 square miles, are unrivalled throughout the world for the variety of species, and more particularly for the size of the timber of full growth. It will be seen by the accompanying catalogue, that in this class, as well as in that of wood for cabinet making, Canada possesses certain precious rareties, which it alone can furnish. The productions of the fisheries and of the chase placed in the same category, enable the country to take an exclusive place, as a field for industrial pursuits.

It is hardly necessary to dilate upon the importance and beauty of Canadian grain; it will be sufficient for the visitor to examine attentively the gallery of the annexe on the *Cours la Reine* in the Canadian section, to form an idea of the great number and beauty of the agricul-

tural productions, properly so called, of this Province. The varieties of spring and fall wheat, of barley, oats, and peas, the suitableness as breadstuffs of many of these descriptions of grain, will at once make it apparent that a fertile soil is seconded by a favorable climate, which admits, moreover, of the cultivation of Indian corn, tobacco, and fruits which our winters do not prevent from attaining a perfect development.

In the fourth and fifth classes of general mechanism applied to manufactures, and the sixth and seventh of special mechanism, Canada having obtained several prizes and honorable mentions in London, forwarded to Paris articles which are at least worthy of remark, and of which much has been already said by the public. Among these articles are some which are second to none exhibited by any other country.

It was not to be expected that the Canadian Exhibition would include many of the articles comprised in the 8th and 9th classes, which, having reference to manufactures, relate more particularly to the sciences and the employment of chemical and physical agents, for the very simple reason that a small population cannot create an adequate demand for a production so special in its nature.

In the tenth class, Canada has been enabled to exhibit the remarkable productions with which nature abounds, varnishes, gums, vegetable and animal oils, soaps and alkalis, leathers, dyes and paint stuffs. Special notice should be taken of two articles exclusively belonging to Canada, and introduced into manufactures by Canadians; I refer to the porpoise leather and the paper made from the *Immortelle* (*gnaphalium.*)

In the eleventh, the methods employed in the preparation and preservation of alimentary substances, to adapt them for exportation, and to enable them to support the accidents of a long voyage, are illustrated by a large number of specimens.

In the twelfth class, Canada exhibits several plants and substances, giving a partial idea of the numerous drugs which she is capable of supplying; and in the thirteenth class, specimens of articles connected with navigation and ship building, the latter, one of the principal sources from which Canada derives her wealth; a branch of trade to the importance of which no limits need be set, seeing the abundance and excellent qualities of the materials which form its basis.

In the fourteenth class, the visitor may see models of the immense works connected with the navigation of the St. Lawrence, and also, what will be of the greatest interest to foreign consumers, a number of articles manufactured of wood, the low prices of which cause the greatest astonishment to all.

In the classes following are exhibited specimens of manufacture in metals, of textile fabrics, tools, instruments and cloths, tissues, knitting, cordage, &c., in the formation of which, iron, copper, lead, the plastic earths, wood, hemp, flax, straw, constitute the principal materials. It must be remarked, however, that the present production is but a fraction of what the country could supply at very low rates, on account of the very small price of the raw material, the facilities for internal communications, and the power of procuring at no expense, unlimited water power for the service of machinery.

The Committee have also deemed it advisable to send over specimens of those branches of manufacture, having for their object the improvement of the different articles of dress. In this class, attention is directed to the woollen and linen fabrics, made by hand, and known by the names of *druggets* and *home made cloths*, which by the closeness of their texture are admirably adapted for working clothes; also the specimen of foot gear known as *bottes sauvages*, the form and material of which are suitable for the farmer, the woodsman, the sailor and the soldier.

To conclude, Canada also furnishes specimens of paintings and architectural and other drawings, of typography, bookbinding, photography and lithography. It was never for an instant designed to compete with the countries of Europe in these branches of the arts, it was only intended to show, that Canada was not ignorant of these arts of civilization.

The visitor, who doubtless expects to find specimens of Indian manufacture, will not be disappointed in his anticipations, he may see these fancy articles, the produce of Indian skill, and he will find among them embroideries which for brightness of color and originality of design may be compared with the finest specimens of the art. One cannot behold without surprise, the tasteful reproduction of flowers and forest leaves, the graceful lines of some of these productions along which the light fingers of the daughter of the forests have been guided by an imagination inspired by a life passed in contemplation, by the perpetual spectacle of a nature as imposing, viewing it as a whole, as it is lovely in all its details.

In the foregoing and following remarks, mention has been only made of the articles, without reference to the interests of the exhibitors, for it is the interest of Canada and not that of individuals that has been considered in the preparation of this catalogue.

The style of the English catalogue has been adopted, and all notice of the different professions or callings of the exhibitors and of prizes previously obtained, either at the London Exhibition or elsewhere, has been omitted in its compilation.

CLASSIFICATION OF ARTICLES SENT FROM CANADA AND EXHIBITED IN THE ANNEXE NEAR THE RIVER.

First Division.

Manufactures.

1st Group.—Articles having for their object the industrial pursuits in connection with the extraction or production of the raw material.

FIRST CLASS.

MINING AND METALLURGICAL OPERATIONS, STATISTICS, AND GENERAL DOCUMENTS.

1. *Geological Commission of Canada.*—Montreal, Lower Canada. Geological Map of Canada, and a collection of minerals mentioned in detail in the following sections :

2. *Keefer* (*Thomas*) Civil Engineer, Montreal, Lower Canada. Topographical Map of Canada.

Section 4.

Combustible Minerals.

3 *Scobell* (*J.*,) Architect, Montreal, Lower Canada. Turf, pressed and not pressed.

4. *Boston, John*, Sheriff of Montreal, Lower Canada. Turf.

Section 5.

Iron and Iron Castings.

5. *Billings* (*C.*,) Ottawa City, Upper Canada. Silicate of iron.

Geological Commission of Canada already mentioned under No. 1. A mass of pure meteoric iron, titaniferous iron, oligist and chromic iron, magnetic pyrites, iron pyrites, ferruginous ochre.

6. *Marmora Iron Company*, Marmora, Upper Canada. Oxydulated iron.

7. *Ottawa Mining Company*, Ottawa, Upper Canada. Oxydulated iron.

8. *Dickson* (*Andrew*), Kingston, Upper Canada. Oligist iron

9. *Lancaster (R.)*, Vaudreuil, Lower Canada. Specimens of bog iron ore and phosphate of iron.

10. *Larue & Co*, Manufacturers, Three Rivers, Lower Canada. Bog iron ore, with specimens of castings made therefrom.

11. *Morin*, St. Valier, Lower Canada. Specimens of bog iron ore.

12. *Morris (Alexander)*, Montreal, Lower Canada. Oxydulated iron from South Sherbrooke.

13. *Mudget (B.,)* Sutton, Lower Canada. Titaniferous iron.

14 *Porter & Co*, manufacturers, St. Maurice Forges, Lower Canada. Specimens of bog iron ore, castings and malleable iron.

15. *Seymour*, Madoc, Upper Canada. Oxydulated iron.

16. *Smith (H L.)* Sutton, Lower Canada. Titaniferous iron.

17. *Stutson (Oramel,)* Sutton, Lower Canada. Titaniferous iron.

18. *Stevens (George,)* Newborough, Upper Canada. Oxydulated iron.

19. *Vanorman (B.,)* manufacturer, Tilsonburgh, Upper Canada. Specimens of bog iron ore.

Section 6.

Common Metals (with the exception of Iron.)

20. *Bluit*, Lansdowne, Upper Canada, Sulphuret of lead.

Geological Commission of Canada, already mentioned at No. 1. Specimens of copper ore, zinc, uranium and galena.

21. *Copper Bay Mining Company*, Montreal, Lower Canada. Specimens of Lake Huron copper ore.

22. *Montreal Mining Company*, Lower Canada. Copper Ore from Lakes Huron and Superior.

23. *Quebec and Lake Superior Mining Company*, Lower Canada. Native copper and specimens of Michipicoten copper ore.

24. *MacLean (J,)* Ramsay, Upper Canada. Sulphuret of lead.

25. *Sleeper (Louis,)* Quebec, Lower Canada. Copper ore with native gold and a series of minerals, illustrating the veins of Leeds, Lower Canada.

Section 7.

Precious Metals.

Geological Commission of Canada, already mentioned at No. 1. Native silver with copper, ores containing gold and silver, ores containing silver.

26. *Douglas (J.,)* Quebec, Lower Canada. Auriferous pyrites, auriferous galena, gold and silver from the Beauce mines near Quebec, extracted by washing.

27. *Logan (James,)* Montreal, Lower Canada, native gold, platinum, and iridosminum, with the different descriptions of pebbles and fine sand which are mixed up with these metals at River du Loup, Beauce, near Quebec.

Sleeper (Louis,) Quebec, Lower Canada, already mentioned under No. 25. Native gold.

SECTION 9.

Non-Metallic Mineral Productions.

28 *Albert (M.,)* Montreal, Lower Canada. Steatite.

29. *Andres (L. & R.,)* Chambly, Lower Canada, Amianthus.

30. *Benton (L. K.,)* Stanstead, Lower Canada. Shell marl.

Boston, Montreal, Lower Canada, already mentioned under No. 4. Shell marl.

31. *Brown (R.,)* Rice Lake, Upper Canada. Marmora marble.

32. *Brown (James,)* Cement Manufacturer, St. Catharines, Upper Canada. Thorold cement, with a specimen of calcareous stone, of which it is composed.

33. *Caron & Deblois*, Quebec, Lower Canada. Red ochres.

34. *Calway (James,)* St. Joseph, Lower Canada. Granite.

Geological Commission of Canada, already mentioned under No. 1. Dolomite, ilmenite, bog manganese, agglomeration of jasper, magnesian limestone, serpentine, marbles, ochres, sandstone for building purposes, hydraulic limestone, white brick, building stone, stones for lithographic purposes, slate, tripoli, agate, jasper, quartz, waved agates, whetstones, sandstone, white quartz, fossils, and other articles.

35. *Shipton Slate Company* Lower Canada. Roofing slates

36. *Hamilton International Company*, Upper Canada. Asphalt.

37. *Cheesman (R.,)* Philipsburgh, Lower Canada. St. Armand marble.

38. *Cyr (L.,)* Ste. Rose, Lower Canada. Shell marl.

39. *Grand Trunk Railway Company.* Specimens of the different descriptions of stone used in the public works

40. *Donaldson (J.,)* Oneida. Upper Canada Gypsum.

41. *Foster (H.,)* Brome, Lower Canada. Dolomite.

42. *Gauvreau (Pierre,)* Architect, Quebec, Lower Canada. Quebec cement and the stone in its natural state, together with the stone formed from the cement. This contributor received a diploma in Canada for his preparation.

43. *Guy (J.,)* Melbourne, Lower Canada. Roofing slates.

44. *Hilliard & Dickson*, Pakenham, Upper Canada. Building stone.

45. *Hutchison & Morisson*, Montreal, Lower Canada. A block of hewn limestone for building purposes.

46. *Jackman, Gilman*, Kingsey, Lower Canada. Whetstones.

47. *Jarvis* (*W. B.*,) Toronto, Upper Canada. Building materials.

48. *Inlay* (*T.*,) Grenville, Lower Canada. Mica.

49. *Keefer* (*Samuel*,) Civil Engineer, Brockville, Upper Canada. Stone used on the public works.

Keefer (*Thomas*,) already mentioned under No. 2. Blocks of hewn limestone for building.

50. *Lemieux* (*François*,) Commissioner of Public Works at Quebec, Lower Canada. Lorette, Pointe aux Trembles and Cap Rouge building stone.

51. *Leslie* (*James*,) Sherbrooke, Lower Canada. Roofing slates.

52. *Little*, Paris, Upper Canada. Hydraulic limestone.

Larue & Company, already mentioned under No. 10. Limestone, argillite, and moulding sand, materials employed in the Radnor Forges, near the River St. Maurice, in Lower Canada.

Mudget (*B.*,) already mentioned under No. 13. Dolomite.

53. *Macdonald*, Des Chats, Upper Canada. Building stone.

54. *Mackay* (*Honorable Thomas*,) New Edinburgh, Upper Canada. Shell marl.

55. *MacLoughlin* (*D.*,) Ottawa City, Upper Canada. Arnprior marble and building stone.

56. *MacMannis* (*J.*,) Bolton, Lower Canada. Pot stone, or steatite.

57. *Townley* (Mrs.,) Toronto, Upper Canada. White brick.

58. *Martindale* (*Thomas*,) Oneida, Upper Canada. Gypsum.

59. *Munroe & Co.*, Pointe du Lac, Lower Canada. Ochres.

60. *Newton* (*W.*,) Bolton, Lower Canada. Chromic iron.

61. *O'Connor* (*Daniel*,) Lansdowne, Upper Canada. Sulphate of baryta.

62. *Perrault* (*Zephirin*,) Kamouraska, Lower Canada. Amianthus.

63. *Perry* (*Edmond*,) Brockville, Upper Canada. Blocks of Cut limestone.

64. *Primmerman* (*J.*,) Barnston, Lower Canada. Blocks of granite.

Porter & Co., already mentioned under No. 14. Limestone and refractory sandstone, used at their forges at St. Maurice in Lower Canada.

65. *Samson*, Pointe Levi, Lower Canada. Dolomite.

66. *Sparkes*, Ottawa City, Upper Canada. Shell marl.

67. *Spottiswood & Reynolds*, Paris, Upper Canada. Gypsum.

68. *Sykes, Deberque & Co.*, Montreal, Lower Canada. Labradorite.

69. *Tanguay* (*Abbé*,) Rimouski, Lower Canada. Fossils.

70. *Tardif* (*Joseph*,) Tring, Lower Canada. Roofing slates.
71. *White & Gallop*, Melbourne, Lower Canada. Pot stone.
72. *White* (*P.*,) Pembroke, Upper Canada. Building stone.
73. *Whitecombe* (*J.*,) Hawksbury, Upper Canada. Shell marl.
74. *Wilson* (*James*,) Physician, Perth, Upper Canada. Phosphate of lime, barytes, graphite, perthite and peristherite.
75 *Woodward* (*H.*,) Bolton, Lower Canada. Steatite.
76. *Yates* (*W.*,) Paris, Upper Canada. Gypsum.
77. *Yeomans* (*A.*,) Belleville, Upper Canada. Shell marl.

RECAPITULATION.

NAMES OF THE ARTICLES CONTAINED IN FIRST CLASS.

Topographic and Geological Maps.

Metals and their Ores.

A lump of meteoric iron, oxydulated iron, oligist iron, bog iron, titaniferous iron, ilmenite, blende, galena, native copper ore, pyrites containing gold and silver, nickel, native silver, native gold, platinum, iridium, auriferous pyrites, arsenical pyrites.

Minerals requiring Chemical Manipulation to adapt them to the Fine Arts.

Ochre of uranium, chromic iron, cobalt, manganese, molybdenite dolomite, magnesite.

Mineral Paints.

Iron ochre, barytine, phosphate of iron.

Minerals made use of in the Fine Arts.

Lithographic stone, mineral materials made use of in jewellery, agates, Labradorites, jaspers, quartz, waved agates, perthite rubies.

Refractory Materials.

Pot stone or steatite, mica, plumbago, white sandstone, amianthus.

Mineral Manures.

Phosphate of lime, gypsum, shell marl.

Sharpening and Polishing Materials.

Whetstones, tripoli.

Buildi'g Materials.

Slate, white granite, gneiss, sandstone, calcareous sandstone, limestone, trap, marble, hydraulic limestone, bricks.

Combustible Matters.

Turf, asphaltum.

PRICES.

It is a difficult task to assign any price to the articles above named, and in fact no commercial value has hitherto been affixed to them. Here is all that can be said on the subject:

Magnetic and bog iron ores cost about 5s. per ton, delivered unsmelted at the furnaces on the spot. Barytine costs at present £2 10s. per t n, delivered unsmelted, and £7 10s., when smelted and prepared. Gypsum is worth from 1s. to 1s. 5d. per bushel when ground for manure, at the pit, or more according to the distance from it.

Sandstone and limestone, for building purposes, cost, on delivery in undressed blocks in the towns ready for cutting, from 8d. to 1s. per cubic foot. The cost of quarrying, exclusive of the different charges for carriage, is from 6s. to 10s. per cubic yard. Blocks of limestone and sandstone, cut and laid on the spot where the work is to be carried on, cost, in proportion to their size, from 2s. to 5s. per cubic foot. Granite costs a little more; blocks not so well finished, prepared for docks and canals, generally cost about £1 per cubic metre, when used for that purpose.

Lime is worth from 6d. to 11d. per bushel, according to the localities in which it is found.

REMARKS.

Mining operations in Canada are yet in their infancy, and the improvement of its mineral resources, has been confined, properly speaking, to mere experiments. It is only during the last few years that the manufacturers of the country have offered any serious competition to the importation of iron castings. It is but a few years since, that, with a very insufficient staff, the Geological Commission of Canada commenced their labours, and revealed to us immense mineral wealth. Iron, copper, coloring matters, and building materials, are found in inexhaustible quantities, and of superior quality. Were adequate labour and

capital directed by science to be employed, Canada would be prepared to furnish foreign countries with these different primary materials at greatly reduced prices.

These few remarks will suffice to shew that Canada is represented at the Universal Exhibition not as working her mines, but merely as possessing that natural wealth which, by the application of labor and science, might be turned to advantage.

Let us remark that experiments have been tried with some of the cements, of which there are numerous specimens at the Exhibition, which tend to shew that if rough cast upon laths, the plastering forms an impenetrable covering for houses, offering at the same time the advantages of lightness and solidity. A roof of this description, constructed as an experiment, has been found to withstand the influence both of the heat of summer and the cold of winter, without shewing the slightest flaw or leakage.

Gypsum is now exported in the United States, and as this branch of trade extends, a reduction in the price will necessarily be effected.

Messrs. Logan & Hunt, Members of the Canadian Geological Commission, and Commissioners in Paris, have just published a pamphlet upon the mineral productions of Canada.

We must also notice that the exportation of metal from the mines, increases every year. The exportations were calculated at £8,350, in 1852 at £27,300, in 1853; and reached the value of £74,000, in 1854.

SECOND CLASS.

FORESTRY, HUNTING, FISHERIES, AND SPONTANEOUS VEGETABLE PRODUCTIONS.

SECTION 1.

Statistics and various Documents.

The Canadian Executive Committee have placed at the disposal of the Commissioners in Paris, a considerable number of printed documents, containing remarks upon Canada. These documents are distributed *gratis* to visitors.

SECTION 2.

Forestry.

78. *Bouchard* (*Pierre*), Quebec, Lower Canada. A small sample of curled maple.
79. *Dorwin* (*J. W.*), Montreal, Lower Canada. Pine plank.

Dickson (*Andrew*), mentioned under No. 8. Small specimens of 64 varieties of Canada woods. [See Recapitulation.]

80. *Farmer and De Blaquiere*, Woodstock, Upper Canada. Specimens, in sawed planks and cross sections, of the following descriptions of timber, and their several varieties: elm, lime, birch, maple, ash, cherry, walnut, ironwood, plane, chestnut, beech, poplar, carthamum, cedar, mountain-ash, and oak.
81. *Gamble* (*J. W.*), Vaughan, Upper Canada. Specimens of the following descriptions of timber: pine, oak, elm, and birch.
82. *Kennedy* (*William*), Montreal, Lower Canada. Specimens of wood for cabinet-making purposes.
83. *Lavoie* (*Abraham*), Rimouski, Lower Canada. Cross sections of spruce.
84. *Lavoie* (*Joseph*), Rimouski, Lower Canada. Cross sections of tamarac.
85. *Levesque* (*Celestin*), Rimouski, Lower Canada. Knees of tamarac.
86. *Marmon* (*Jean*), Rimouski, Lower Canada. Cross sections of birch.
87. *Saint Armand*, Becancour, Lower Canada. Small specimen of polished ash.
88. *Saint Arnaud*, (*M.*), Quebec, Lower Canada. A sheet of bird's-eye maple for veneering, illustrating at the same time a new plan for preparing timber for veneering.

89. *Sharples* (*J.*), Quebec, Lower Canada. Specimens of the following descriptions of timber, and of their several varieties: pine, spruce, walnut, oak, birch, ironwood, elm, ash, white birch, lime, and maple.

Section 3.

Manufactures in wood.

90. *Cantin* (*A.*,) Montreal, Lower Canada. Boat oars.
91. *Dubeau* (*Jean*,) Quebec. A wooden bottle exhibited as a specimen of cooper's work.
92. *Grant* and *Hall*, Montreal, Lower Canada. Barrels.
93. *Halliday* (*James*,) Montreal, Lower Canada. Specimens of wood turning.
94. *Lamouche* (*A.*,) Montreal, Lower Canada. Wooden shovels.
Larue & Co., already mentioned under No. 10. Charcoal used in their Forges near Three Rivers.
95. *Manning* (*William*,) Montreal, Lower Canada. Staves.
96. *MacGibbon* (*William*,) Montreal, Lower Canada. Hoops and barrels.
97. *Moore* (*Thomas*,) Mimico, Upper Canada. Axe handles.
98. *Paxton* and *Jennings*, Montreal, Lower Canada. Staves.
99. *Redpath* (*J.*,) Montreal, Lower Canada. Different preparations of maple sugar.
100. *Smith* (*D. & G.*,) Montreal, Lower Canada. Handles of tools and wheel spokes.

Section 4.

Land and amphibious animals.

101. *Booth* (*J.*,) Niagara, Upper Canada. Stuffed animals.
102. *Carr* (*J.*,) Toronto, Upper Canada. Horse hair.
103. *Kennedy* (*D.*,) Toronto, Upper Canada. Stuffed birds.
104. *Lepage* (*J. L.*,) Rimouski, Lower Canada. Porpoise oil.
105. *Levesque* (*Nicholas*,) Rimouski, Lower Canada. Porpoise oil.
106. *MacCulloch* (*Mrs.*,) Montreal, Lower Canada. Collection of stuffed birds.
107. *Mercier* (*David*,) Quebec, Lower Canada. Products of the chase, and caribou and seal skin coats.
108. *Mochrie* (*George*,) Montreal, Lower Canada. Preserved venison.
109. *Malo* (*Abbe*,) Becancour, Lower Canada. Caribou skin dressed white.
110. *Nault* (*Professor*,) Quebec, Lower Canada. Castoreum.
111. *Simpson* (*Sir George*,) Lachine, Lower Canada. Bear, lynx, fox, otter, mink, martin and beaver furs.

112. *Tetu* (*Charles Hilaire*,) Rivière Ouelle, Lower Canada. Whale, porpoise and seal oil clarified.

Section 5.

Fishing.

113. *Levesque* (*George*,) Pointe aux Orignaux, Lower Canada. Plans of the fisheries in relief.
114. *Murphy* (*M.*,) Montreal, Lower Canada. Fishing lines.
115. *Peacock* (*John*,) Montreal, Lower Canada. Fishing lines.
Tetu (*C. H.*,) already mentioned under No. 112. Shark and capelan clarified oil.

Section 6.

Spontaneous Productions.

116. *Ardouin* (*A.*,) Quebec, Lower Canada. Medicinal plants.
117. *Giroux* (*Oliver*,) Quebec, Lower Canada. Medicinal plants, fir and pine gum and spruce oil.

RECAPITULATION.

NAMES OF ARTICLES CONTAINED IN THE SECOND CLASS.

Documents on Canada.

Timber of 64 different varieties: Bass wood, lime, sumach, common maple, red maple, curled maple, bird's eye maple, soft maple, wild plum, red cherry, autumn cherry, choke cherry, pommette tree, white and yellow, medlar, hawthorn, cornel tree, wild pear, mountain ash, white ash, black ash, hard ash, common ash, carthamum, elm, red elm, grey elm, brown elm, butternut, black walnut, sweet walnut, common walnut, hickory, white oak, swamp oak, red oak, black oak, chestnut, beech, hornbean, northern plane, pitch pine, red pine, yellow pine, white pine, fir, hemlock, spruce, black spruce, tamarack, white and red cedar, iron wood, white bouleau, red bouleau, white birch, red birch, alder, black osier, aspen, white poplar, poplar, liard, boat oars, turners' ware, wooden shovels, charcoal, staves, hoops, axe handles, handles for tools, maple sugar, stuffed animals and birds, preserved meats, castoreum, plan of the fisheries, fishing lines, artificial flies for fishing, medicinal plants.

Pine, fir, and spruce gums.

Whale, porpoise, seal, shark and capelan oils.

Bear, wolf, lynx, fox, moose deer, caribou, deer, beaver, seal, otter, mink and martin skins.

PRICES

OF ARTICLES IN CLASS II.

The prices here quoted are those obtained during the last few years; they are higher than those of the preceding ones. It is a known fact that this increase in the cost of all articles of consumption is common to all countries.

The price of square timber of the description known by merchants under the name of white and yellow pine, is, for square logs from 3d. to 9d. per cubic foot, according to the quality and size of the logs.

Oak, subject to the same variation, is from 1s. 4d. to 2s. 6d.

Birch and maple from 7d. to 1s.

Red spruce from 6d. to 1s.

Elm from 8d. to 1s. 8d.

Ash from 6d. to 11d.

Black walnut from 1s. to 1s. 3d.

Red pine from 8d. to 1s. 2d.

Cedar from 4d. to 6d.

Sawn lumber taken from the market for exportation assumes the regular form of the plank of commerce of the uniform length of 12 feet, and the uniform thickness of 3 inches, the breadth being variable. Plank is sold by the hundred pieces standard measure of St. Petersburg, containing about 2 cubic metres, and about 130 metres superficial measure of sawing, reckoning only one saw cut per plank.

Pine plank cost per hundred from 120s. to 300s., according to the kind and quality.

Spruce plank from 60s. to 150s. also according to kind and quality.

Beams, of various kinds of wood of small dimensions, prepared for building purposes, as pine 9 inches by 5 inches cost, according to the place of sale, from 2½d. to 5d. per lineal foot.

Firewood by the cord, containing at least 4 cubic metres costs in the cities :—

Hard maple mixed with birch (weighing about 2600 kilogrammes) from 30s. to 40s.

Soft wood (weighing about 2000 kilogrammes) from 12s. 6d. to 20s.

The cedar shingle, split and shaved, costs from 7s. to 9s. per thousand, capable of covering a surface of about 30 metres from the rain.

The lath of commerce which is of cypress, split only in the rough, costs from 16s. to 35s. per cord.

The board of 10 feet in length, by 1 inch in thickness, and a mean breadth of 10 inches costs:

Clear pine, according to quality and kind, from 40s. to 80s., per hundred pieces;

Clear spruce, also according to quality and kind, from 20s. to 40s.

The stave of commerce, of oak, in pieces containing on the average 1200 cubic inches of timber, costs from 850s. to 950s. per thousand.

The above prices are those of the Quebec market, which, being the principal port for shipment, rules, in this particular, the whole export trade with Europe.

The flour barrel of commerce, made to hold about 196 lbs., costs from 2s. 3d. to 2s. 6d.

Maple sugar, in lumps, costs, according to the season and the quality, from 3d. to 6d. per lb.

Pine gum (Canada balsam) costs from 4s. to 4s. 6d. the quart. Spruce oil (a resinous oil) from 6s. to 7s per quart.

Whale oil costs about 1s. per quart; porpoise, black porpoise, shark and seal oils when clarified, cost about 1s. 3d.; cod, capelin, and sardine oils 11d.

The prices of furs are very various, according to the year. The following are the extreme rates in ordinary seasons for ordinary sizes and qualities:

Bear skins, 20s. to 80s.; lynx, 12s. to 20s.; red fox, 5s. to 7s.; silver fox, 50s. to 150s.; black fox, 150s. to 600s.; beaver, 3s. to 8s. per lb.; otter skins, 25s. to 50s.: mink, 5s. to 10s.; stone martin, 20s. to 50s.; red martin, 10s. to 20s.; elk and moose, dressed, 20s. to 40s.; seal, 2s. 6d. to 5s.

REMARKS.

The timber for sale at Quebec undergoes the inspection of a body of officers known as the department of the Superintendent of Cullers. The Cullers are authorised measurers and inspectors of timber, granting through the medium of the Superintendent, who keeps a register thereof, certificates of the quantity and quality of wood for sale, sold, or purchased. There are three modes of purchasing:

1st. By the whole raft, on its arrival, measured, without breaking bulk, on a certified statement of the kinds and the quantity, but without any guarantee as to quality; 2nd. By the raft, on a certified statement of the kinds, the quality, and a specification of *the apparent defects* afloat; 3rd.

On a certified statement of the kinds, the quantity and quality, after due inspection and dressing of the logs, severally, by the Cullers in the booms.

Purchasers in the Quebec market, who are acquainted with the manufacturer and the place where the timber is made, commonly buy in the raft, while still afloat; strangers buy the timber from them culled, dressed with the axe, and warranted.

To give an idea of the dimensions of our timber, we may say that each several piece squared, contains from 30 to 250 cubic feet; there are logs of still larger size, those for instance which are intended for masts. Some idea of the average size may be formed from this circumstance; namely, that a vessel's cargo is rated, or considered as ordinary, in respect to the dimensions of the timber taken generally, when each square log contains from 50 to 75 cubic feet; it is rated as choice when the average log exceeds 75 cubic feet, and there have been cargoes of which the average log excceded 100 cubic feet.

I here present a statement of the principal descriptions of square timber, measured and culled at the port of Quebec only, in the year 1853. It must be borne in mind that these quantities relate only to large square timber for building purposes.

White and Yellow Pine	17,422,724	cubic feet.
Red Pine	1,851,435	" "
Oak	1,160,614	" "
Elm	695,285	" "
Ash	158,990	" "
Tamarack	707,155	" "
Maple and Birch	71,007	" "
Masts	1,067	pieces.
Spars	849	"

Of the different kinds mentioned in the list of woods exhibited in the annexe of the *Cours-la-Reine*, Canada exported in 1853, the following quantities:

Square Timber	617,421	tons.
Planks and Boards	25,523,115	pieces.
Shingles	24,821	thousands.
Birchwood	29,445	cords.
Laths	30,000	"
Tamarack Knees, Sleepers, Round Logs, Railroad Ties	431,820	pieces.
Staves of Commerce	4,834,000	"

The forest, moreover, contributed to the exports of that year 27,074 barrels (each about $5\frac{1}{2}$ cwt.) of potash and other salts.

A few remarks on the purposes to which these woods are applied will not be misplaced. It will be discovered, in the first place, that the great variety of kinds and abundance in quantity of the woods of our forests, is the reason that the greater number of them have no intrinsic value in the country; and that they would cost, to those desiring to procure them, only the price of cutting and the carriage; except pine, walnut, ash, elm, tamarack and cedar; all other kinds bear a value in commerce, equal only to the cost of cutting and carrying them. Pine, one of the chief products of Canadian woodcraft, is useful for all purposes, being much used in cabinet and joiner's work, building and ship-building, in short in all the arts in which wood is a material. Spruce is next to pine, being applied to the same uses, and substituted for it. It is stronger than pine.

Tamarack is, perhaps, the most valuable wood in Canada. For ship-building particularly, it contains the qualities found separately in other kinds of wood, but combined in none, lightness, strength, and a degree of durability equal to that of the cedar. It is used for many purposes in timber work, and since the discovery of its excellence in Europe, the demand for it has greatly increased. The best oak is superior to it, only for the outside work of a ship, and where it is exposed to violent shocks or friction. In naval architecture, nothing will bear comparison with it, either for the knees, bends, or garlands of a ship.

Cedar is used in the frame-work of buildings, in the timbers of ships, and in the fencing of lands. This wood is very abundant, and very cheap in the lower district of the St. Lawrence. It everywhere attains a large size. Oak is used almost exclusively in turners' and coopers' work, and in ship-building; and it is prepared to be exported for such purposes. There are several kinds; the white oak is the best, growing chiefly in the upper district of the St. Lawrence.

Elm of various kinds, some inferior, and others excellent, is used in ship-building, both at home and abroad.

Ash is used in the various branches of building, in turners' and coopers' work, and in carriage making.

The various kinds of birch are used chiefly by cabinet-makers, and carriage-makers. For such purposes it is exported. In the frames of ships, for the parts under water, it is more used as it becomes better known. No wood is better adapted to sustain shocks and frictions than birch of good quality.

Maple, particularly the kind, known as birds' eye maple and curled maple, is one of the most beautiful woods for cabinet work and inlaying. Its hardness, beauty, and cheapness render it particularly suitable for floor-

ing. We must notice a piece of veneering obtained by a mechanical process; this specimen bears some resemblance to a piece of cloth, and is 27 yards in length without a break. It will be observed that maple acquires by being polished, a warmth and a depth of color, which is peculiar to it.

The different kinds of walnut, especially the black walnut, supply the most valuable materials to the cabinet maker. The same may be said of a species of cherry-tree, which resembles mahogany, and which is used in Upper Canada.

The lime and the bass-wood are peculiarly useful in carriage-building for the panels of carriages. These species of wood, being free from knots, and but slightly subject to warp or shrink in the work, might answer for many purposes. They are likewise used in cabinet work.

These are nearly all the kinds of wood which are turned to any account in Canada. Comparing this list with that of the trees which abound in the forests, how many do we pass by with neglect, which in Europe are turned to useful purposes; the fir, the bouleau, the poplar, and many others, would cost but the trouble or the expense of cutting them.

The gums of the resinous trees, as the pine, the fir and the tamarack, particularly that of the first, yield valuable substances, which may be applied in the preparation of varnishes and officinal matters.

It is unnecessary to invite attention to the furs of Canada, their beauty is acknowledged on all hands.

We commend to the attentive examination of connoisseurs, the porpoise, whale and seal oils, and others, not omitting that of the little black porpoise, (*delphinus minor*). This last has the quality, peculiar to itself, of not congealing at as low a temperature as 34° Fahrenheit, which only deprives it of its transparency. The greatest cold known in Canada, in ordinary seasons which causes other oils to coagulate, does not even render that of the black porpoise less transparent. All these oils are clarified and thus acquire a higher value in the market, being freed from the dirt and impurities, usually suspended in the coarse oils of commerce.

THIRD CLASS.

AGRICULTURE.

SECTION 1ST.

General Documents and Plans.

118. *Evans* (*William*,) Montreal, Lower Canada. Plan of a Canadian farm.
119. *Shepherd* (*Miss*,) Montreal, Lower Canada. Drawing, from nature, of Canadian fruits and vegetables.

SECTION 3.

Agricultural Implements.

120. *Brough* (*R.*,) Gananoque, Upper Canada. Rakes.
121. *Bingham* (*J.*,) Norwich, Upper Canada. Iron plough.
122. *Dion* and *Lepage*, Rimouski, Lower Canada. Thrashing machine.
123. *Jeffries* (*J.*,) Petite-Côte, Lower Canada. Root cutter.
124. *Ladd* (*C. P.*,) Montreal, Lower Canada. Flour mill.
125. *Moody* (*Matthew*,) Terrebonne, Lower Canada. Reaping and raking machines.
126. *Morse* (*L.*,) Milton, Upper Canada. A plough.
127. *Paige* (*B. P.*,) Montreal, Lower Canada. Thrashing machine.
128. *Paterson* (*J.*,) Montreal, Lower Canada. A plough.
129. *Rice* (*W. H.*,) Montreal, Lower Canada. Winnowing machine, dressing machine and metallic sieve for cleaning grain.

SECTION 4.

General Cultures.

130. *Bouchard* (*Madame*,) St. Valier, Lower Canada. Flax.
131. *Badham*, Drummondville, Lower Canada. Oats.
132. *Caaada Company*, Toronto, Upper Canada. Wheat.
133. *Clark* (*J.*,) Longue Pointe, Lower Canada. Peas.
134. *Coffin* (*Abraham*,) Gaspé, Lower Canada. Spring wheat.
135. *Corse and May*, Montreal, Lower Canada. Linseed cakes.
136. *Daws and Son*, Lachine, Lower Canada. Hops.
137. *Derrick* (*H.*,) Lacolle, Lower Canada. Peas.
138. *Dillon* (*J.*,) Long Point, Lower Canada. Peas.
139. *Dagg* (*J.*,) Montreal, Lower Canada. Oats.
140. *Fischer* (*J.*,) Montreal, Lower Canada. Barley and sesame.
141. *Fleming* (*J.*,) Toronto, Upper Canada. Peas and garden seeds.
142. *Graham*, Chateauguay, Lower Canada. Barley.

143. *Jarvis* (*F.*,) Toronto, Upper Canada. Hops.

144. *Kempton* (*A.*,) Saint Therèse, Lower Canada. Wheat.

145. *Knox* (*W. J.*,) Lachine, Lower Canada. Flax.

146. *Laurent* (*David*,) Varennes, Lower Canada. Oats.

147. *Logan* (*James*,) Montreal, Lower Canada. Barley, carrot and other vegetable seeds.

148. *Lyman* (*William*,) Montreal, Lower Canada. Clover seed and linseed cake.

149. *MacCowan* (*John*,) Lachine, Lower Canada. Spring wheat.

150. *Marmette* (Doctor,) Montmagny, Lower Canada. Tobacco.

151. *Miller* (*Walter*,) Sainte Rose, Lower Canada. Peas.

152. *Moyer & Keating*, Louth, Upper Canada. Dried fruits.

153. *Ossaye* (*F. M.*) Sault au Recollet, Lower Canada. Hemp.

154. *Oswald* (*J.*,) Sainte Therèse, Lower Canada. Barley.

155. *Pelletier* (*J. F.*,) Ile Jésus, Lower Canada. Spring wheat.

156. *Pinault* (*Nicolas*,) Rimouski, Lower Canada. Beans.

157. *Robertson* (*J.*,) Long Point, Lower Canada. Peas.

158. *Saint Pierre* (*Jean*,) Rimouski, Lower Canada. Spring wheat.

159. *Shaw* (*Alexander*,) Toronto, Upper Canada. Chicory.

160. *Shepherd* (*George*,) Montreal, Lower Canada. Collection of garden seeds.

161. *Sloane* (*Alexander*,) Toronto, Upper Canada. Wheat and Indian corn.

162. *Saguenay Agricultural Society*, Lower Canada. Wheat and peas.

163. *Stevens* (*William*,) Saint Martin, Lower Canada. Timothy grass seed.

164. *Taylor* (*James*,) Hatley, Lower Canada. Maple sugar.

165. *Thayer* (*J.*,) Montreal, Lower Canada. Indian corn and beans.

166. *Villeneuve* (Abbé,) Montreal, Lower Canada. Wheat and peas.

167. *Wade* (*R.*,) Cobourg, Upper Canada. Wheat, oats, buck wheat, and barley.

168. *Wilson* (*D.*,) Toronto, Upper Canada. Tobacco.

Section 5.

Articles of special culture.

169. *Perry* (*A.*,) Montreal, Lower Canada. Nuts.

Section 6.

Produce of domestic animals.

170. *Bouchard* (*Mrs.*,) already mentioned, No. 130. Wool.

171. *Lacombe* (*Mrs.*,) St. Michel, Lower Canada. Wool.

172. *Robertson* (*J.*,) Lacolle, Lower Canada. Wool.

173. *Southwick* (*M. O.*) St. Hilaire, Lower Canada. Wool.

SECTION 7.

Farm Produce.

174. *Broge (George)*, Montreal, Lower Canada. Cheese.
175. *Wade (R)*, Cobourg, Upper Canada. Cheese.

RECAPITULATION.

ARTICLES OF THE THIRD CLASS.

Plan of a Canadian farm, water-color drawings of Canadian fruits and vegetables, rakes, ploughs, thrashing machines, root-cutters, portable grist mill, reaping machine, winnowing machine, dressing machine, and other articles for cleaning grain, wheat, oats, barley, peas, flax seed, buckwheat, vegetable and grass seeds, hops, tobacco, beans, dried fruits, chicory, maple sugar, French beans, nuts, raw wool, cheese.

PRICES.

The prices of bread-stuffs have, during the last few years, attained such an unusual elevation, that it would not be proper to give the quotations of the present year. The prices following may be considered as being the average value of articles of good quality, delivered at the place of shipment. With respect to the other articles, their prices have varied but little; those given, being the cost of the respective articles, purchased in Canada.

Horse rake, useful wooden machine, £2 10s.

Iron plough from £1 15s. to £4.

Thrashing machine (Tooth plan,) with horse power motive apparatus from £40 to £65. Thrashing machine, (drum and cylinder), with gear, £15 to £20.

Root cutters, £4 to £5.

Portable Grist Mill, £15.

Reaping machines, £55.

Dressing machine, from £5 to £8.

Wheat per bushel, 4s. to 5s. 6d.; oats, from 1s. to 2s.; barley, from 3s. to 4s.; peas, from 3s. to 4s.; flax-seed, from 4s. to 5s.; grass and vegetable seeds, from 10s. to 15s.; hops, 1s. per lb.; tobacco, 6d.; maple sugar, from 3d. to 6d.; raw wool, from 6d. to 1s. per lb. Wheat has lately been sold as high as 10s. per bushel.

REMARKS.

The model of a Canadian farm has been sent over in order to give an idea of country property in Canada. In our country each estate is enclosed, the properties are distinct, and the farmer, who is the proprietor, never resides beyond the limits of his own fields, unless he is the owner of several lots. The intermixture of large and small properties exists to a very moderate extent; hitherto, the monopoly of property and its subdivision into very small lots, those two gravest of evils, have been unknown. The owner of more than 400 arpents of land, is, in Lower Canada, considered a large proprietor; and a man owning less than 80 arpents is looked upon as a small proprietor.

There is nothing particular to be said with respect to the agricultural implements: it is but fair to admit, that those which are exhibited have been made from models of European and American invention, a few of which have undergone some change. There are, however, some ploughs of Canadian design, and some of these possess undoubted superiority.

We do not hesitate to assert, that the exhibition of breadstuffs, fruits and seeds from Canada, ranks among the most complete of the class. This ought to be so, inasmuch as this colony is almost exclusively an agricultural country, and to this noble pursuit owes its prosperity and success.

It would be useless to enter into any dissertation upon Canadian grain, one remark will suffice, viz.: that Canadian wheat contains a large proportion of gluten, which, in breadmaking permits the admixture of a considerable quantity of potatoes, producing at the same time excellent bread.

The following are the quantities exported in 1853, of the different agricultural productions; the year 1853 is given, because the returns for 1854 have not as yet come to hand:

Wheat	2,666,903	bushels.
Barley	43,350	"
Peas	242,910	"
Oats	1,028,310	"
Indian corn, beans and seeds	40,000	"

Of wool in the natural state only 424,452 lbs. were exported; it should be remarked that large quantities of breadstuffs and animal food are exported in various modes of preparation for keeping.

The sugar made from the sap of the maple tree, with all the saccharine properties of other sugars, possesses a flavour not unlike that of vanilla. This sugar which is generally preferred by the people of the country, is

altogether consumed at home; and, in 1853, the insignificant quantity of 5,996 lbs. only was exported. The total production of maple sugar had attained the extent of 10,000,000 lbs. at the date of the last general census in 1851.

FOURTH CLASS.

GENERAL MECHANISM AS APPLIED TO INDUSTRY.

SECTION 1.

Weighing and guaging apparatus.

176. *Ladd (C.P.,)* Montreal, Lower Canada. Scales used in commerce.
177. *Rodden (W.,)* Montreal, Lower Canada. Scales.

SECTION 7.

Machines for raising weights.

178. *Clark (James,)* Montreal, Lower Canada. Pulleys.

SECTION 8.

Hydraulic and other Engines.

179. *Fergusson (W.,)* Montreal, Lower Canada. Hose pipes.
180. *Lemoine (Louis,)* Quebec, Lower Canada. Fire Engine.
181. *Perry (George,)* Montreal, Lower Canada. Fire Engine.

SECTION 9.

Bellows work.

182. *Lindley (B.,)* Montreal, Lower Canada. Bellows.

NOTE.—Classes 4, 5, 6, 7, 8, and 9, will be included under the same recapitulation. The remarks therefore which relate to these classes will be found given together, and will precede class 10.

FIFTH CLASS.

SPECIAL MACHINERY—ARTICLES RELATING TO CARRIAGE.

SECTION 2.

Harness and Saddlery.

183. *Archambault (André,)* Montreal, Lower Canada. Varnish for harness leather.

184. *Barrington* (*George*,) Montreal, Lower Canada. Set of harness.
185. *Campbell* (*E. R.*,) Hamilton, Upper Canada. Harness-mountings.
186. *Combs* (*John*,) Brockville, Upper Canada. Harness-mountings.
187. *Couvrette* (*Magloire*,) Montreal, Lower Canada. Set of double harness.
188. *Dean* (*Robert*,) Montreal, Lower Canada. Leather Trunk.
189. *Edwards* (*W. & R.*,) Toronto, Upper Canada. Saddles.
190. *Glasford* (*George*,) Brockville, Upper Canada. Hames for collars.
191. *Larivière* (*André*,) Montreal, Lower Canada. Harness
192. *Morris* (*Robert*,) Montreal, Lower Canada. Harness and travelling trunks.
193. *Trelkeld* (*J.*,) Toronto, Upper Canada. Whips.
194. *Wiltse* (*Joseph*,) Fraserville, Upper Canada. Yokes for oxen.

SECTION 5.

Specimens of Carriage building.

195. *Gingras* (*Edouard*,) Quebec, Lower Canada. Four-wheeled pleasure carriage.
196. *Leduc* (*Clovis*,) Montreal, Lower Canada. Four-wheeled pleasure carriage.
197. *Saurin* (*Joseph*,) Quebec, Lower Canada. Pleasure sleigh.

SECTION 7.

Articles appertaining to Railways.—Materials used.

198. *Holland* (*M.*,) Montreal, Lower Canada, Railroad spikes.
Piper Brothers, Toronto, Upper Canada. Large lantern for locomotive engines.

SIXTH CLASS.

SPECIAL MACHINERY AND APPARATUS FOR WORKSHOPS.

SECTION 5.

Metallurgic Machinery.

Dean (*Robert*), already mentioned under No. 182. A portable forge.
Lindley (*C.*,) already mentioned under No. 182. A portable forge.

SECTION 6.

Apparatus and Mechanical Contrivances used in Workshops.

199. *Helme and Wade*, Port Hope, Upper Canada, Drilling machine.
200. *Hood Brothers*, Montreal, Lower Canada. Braces.

Ladd, already mentioned under No. 176. Grinding mill.

201. *MacLellan (J. W.,)* Montreal, Lower Canada. Morticing machine.

202. *Munro (Daniel,)* Montreal, Lower Canada. Planing machine.

203. *Parson (T.,)* Toronto, Upper Canada. Brick making machine.

204. *Rodden (W.,)* Montreal, Lower Canada. Planing and turning machines, Carpenter's bench.

SECTION 7.

Machines for making small articles in Metal.

205. *Dunn (P.,)* Montreal, Lower Canada. Nail making machine.

SECTION 9.

Machines used in Agriculture and in the production and preparation of articles of Food.

206. *Romain (Robert,)* Peterborough, Upper Canada. Steam Cultivator.

SECTION 12.

Machines for special Uses.

207. *Taylor and Dockrill*, Montreal, Lower Canada. Sewing machine.

SEVENTH CLASS.

MACHINERY AND APPARATUS FOR WOVEN MANUFACTURES.

SECTION 2.

Spinning Machines.

208. *Brough (R.,)* Gananoqne, Upper Canada. Spinning wheel.

SECTION 6.

Machines for special uses.

209. *Taylor and Dockrill*, Montreal, Lower Canada. Sewing machine.

EIGHTH CLASS.

INSTRUMENTS RELATING TO THE EXACT SCIENCES AND FOR EDUCATIONAL PURPOSES.

SECTION 3.

Instruments for measuring space, and Optical Instruments.

210. *Hearn and Potter*, Toronto, Upper Canada. Engineers' level.

Some charts and fossil incrustations belonging to this class are referred to elsewhere, under the title Geological Commission of Canada. The Abbé Tanguay and Mr. Keefer.

NINTH CLASS.

CONTRIVANCES CONNECTED WITH THE ECONOMICAL PRODUCTION AND EMPLOYMENT OF HEAT, LIGHT, AND ELECTRICITY.

SECTION 5.

Production and employment of heat and cold.

211. *Chinic, Simard, Methot & Co.*, Quebec, Lower Canada. Stoves.
212. *Macklin, (O. S.)* Chippewa, Upper Canada. A stove.
213. *Prowse (G. F.)* Montreal, Lower Canada. Refrigerators.
Rodden, already named. A kitchen stove.

RECAPITULATION

OF THE ARTICLES COMPRISED IN CLASSES FOUR TO NINE INCLUSIVE.

Scales, pulleys, leather hose, fire engines, bellows, harnesses, hames, trunks, saddles, whips, yokes for oxen, pleasure carriages, railroad spikes, morticing machine, planing and turning machines, brick making machine, nail making machine, steam cultivator, sewing machine, spinning wheels, an engineer's level, a refrigerator, stoves.

PRICES.

FOR COMMERCIAL PURPOSES.

Scales, from £12 10s. to £20.
Pulleys, from 1s. to 1s. 1½d per inch in diameter.
Hose for Fire Engines, 5s. per linear foot.
Fire Engines, according to size, from £40 to £300.
Forge bellows, from £7 10 to £15.
Carriage harnesses, from £30 to £50.
Working harness from £5 to £100.
Leather trunks, from £1 15s. to £10.
Saddles, from £5 to £15.

Pleasure carriages, (similar to those exhibited) from £90 to £175.
Lanterns for Locomotives, £26 10s.
Portable forge, £7 10s.
Drilling machine, £30.
Braces £1 10s.
Morticing machine, £25.
Planing machine, £75 to £150.
Turning machine, £25.
Brick making machine, £12 10s.
Nail making machine,, about £75.
Plough worked by steam, (a new invention) £800.
Sewing machine, £25 10s.
Engineer's level, £30.
Refrigerator, £9 10s.

REMARKS.

It could not reasonably be expected that Canada, where it is so difficult to procure labor, to turn to advantage the great number of natural productions which the soil itself contains, on account of the comparative scarceness both of capital and workmen, should contribute any extensive collection of articles, for the most part belonging to those classes of manufactures which require a low rate of labor, and a large consumption, and which are adapted to an advanced stage of society. Nevertheless, Canadian manufactures have already gained distinction in England in those branches connected with the construction of fire engines, pleasure carriages, and various other articles.

If Canada could have sent to the Exhibition a model of its large saw mills in that section of mechanism having reference to forestry, she might have competed with all other countries in that branch. For instance, a model plan of the large saw mill at Montmorency, near Quebec, or of that at Chicoutimi, on the Saguenay, containing each from 80 to 120 saws, and which furnish for exportation from 10,000 to 20,000 tons of sawn lumber each per year—would have been an object of great interest.

We cannot leave the subject of the preceding classes without saying a word touching a new and purely Canadian invention, which was sent at great expense to Paris, to receive the verdict of the International Jury—I allude to the steam plough or steam cultivator. For several years past mechanics have applied themselves to the serious and difficult task of applying steam as a motive power to ploughing; but all the efforts made up to the present time have been, it may almost be said, futile.

Recently in England, several machines invented for the purpose of solving this difficult problem, were tried at an exhibition held for the purpose. A newspaper giving an account of these trials, says: "Another disap- "pointment! the steam plough is not yet in existence! Shall it be said "that steam cannot be applied to agricultural purposes!"

The Canadian machine, which is at present in Paris,—the name of whose inventor we shall not mention (to remain faithful to the promise we gave not to mention any name in the course of our remarks)—has already been tried in London. It was worked there, but only for a short time, on account of a deficiency in the construction of the ordinary boilers. Several competent persons in England and Scotland have foretold, that notwithstanding this deficiency, it would soon be successful.

Since that time the inventor has devoted all his energy and attention to the construction of a new species of boiler adapted to the working of the machine. In a few days the steam plough and its new boiler will be submitted to proof, at an experimental trial. If this trial be successful, one of the most difficult problems of the present age will have been solved; if it be not satisfactory, it is to be hoped that the inventor will always be favorably remembered for the efforts he has made, and that Canada will be looked upon with consideration for the sacrifices she has made in assisting him to carry out his object.

TENTH CLASS.

Chemicals,

DYEING AND DYE-STUFFS, PAPER, LEATHER AND CAOUTCHOUC MANUFACTURES.

Section 1.

Chemical Productions.

214. *Brennan* (*P.*,) Montreal, Lower Canada. Potash.
215. *Carr* (*D.*,) Toronto, Upper Canada. Glue.
216. *Lyman* (*William*,) Montreal, Lower Canada. Alkaline Salts.
217. *MacFarland* (*A.*,) Montreal, Lower Canada. Glue.
218. *Townsend* (*T. H.*,) Chatham, Upper Canada. Chemical productions.

Section 2.

Oils, Resins, Essences, Soaps, Varnish, Ochres, &c.

219. *Archambault* (*A.*,) Montreal, Lower Canada. Harness Varnish.
220. *Fisher* (*J.*,) Rivière des Prairies, Lower Canada. Oil of Sesamum.

251. *Fox* (*C. D.*,) Montreal, Lower Canada. Neat's-foot Oil.
222. *Hearle* (*J. G.*,) Osnabruck, Upper Canada. Toilet Soaps.
223. *Keefer* (*T. C.*:) Montreal, Lower Canada. Oil of the small black Porpoise (Delphinus minor.)
224. *Laflamme* (*A.*,) Montreal, Lower Canada. Oilcloths.
225. *Lepage* (*L. J.*,) Rimouski, Lower Canada. Porpoise Oil.
226. *Levêque* (*M.*,) Rimouski, Lower Canada. Porpoise Oil.
227. *Lyman* (*S. J.*,) Montreal, Lower Canada. Wax.
228. *Lyman* (*W.*,) Montreal, Lower Canada. Linseed, Seal, Whale, Neat's foot, Lard, Cedar, Spruce, and Pine Oils; wax.
229. *Tetu* (*Charles H.*,) Rivière Ouelle, Lower Canada. Clarified Seal, Porpoise, Whale, Shark and Capelin Oils.

SECTION 3.

Caoutchouc and Gutta Percha.

230. *Montreal India Rubber Company*, Montreal, Lower Canada. India Rubber Boots and Shoes.

SECTION 4.

Leather and Skins.

231. *Houghton and Wallace*, Brantford, Upper Canada. Leathers.
232. *Macklin* (O. *S.*,) Chippewa, Upper Canada. Leathers.
233. *Tetu* (*Charles H.*,) Rivière Ouelle, Lower Canada. Porpoise Leather.
234. *Valois* (*Narcisse*,) Montreal, Lower Canada. Tanned Leather and Dyed Sheepskins.

SECTION 5.

Paper and Pasteboard.

235. *Andres* (*S. R.*,) Chambly, Lower Canada. Paper manufactured from Gnaphalium or Immortelle.

SECTION 6.

Bleaching, Dyeing, Printing, &c.

236. *Gingras* (*Pierre*,) Quebec, Lower Canada. Dyed furs.
237. *Lyman* (*W.*,) & *Co.*, Montreal, Lower Canada. A collection of indigenous dyeing plants, consisting of alder, white oak, butternut, and poplar bark, carthamum, golden rod, and sumach leaves.

SECTION 7.

Colors, Inks, and Chalks.

238. *Taché* (*J. C.*,) and *Michaud* (*T.*,) Rimouski, Lower Canada. Mineral paints, grey, and others; both raw and prepared.

Section 8.

Tobacco, Opium, and other Narcotics.

239. *Marmette Dr.,)* Montmagny, Lower Canada. Tobacco.
240. *Wilson (D.,)* Toronto, Upper Canada. Tobacco.

RECAPITULATION.

NAMES OF ARTICLES CONTAINED IN THE TENTH CLASS.

Potash, glue, alkaline salts, chemical productions, varnish for leather, oil of sesamum, Neat's-foot oil, little black porpoise, (*Delphinus minor*,) whale, seal, porpoise, capelan, shark, lard, cedar, pine, and spruce oils, soaps, oil cloths, india rubber boots and shoes, leather, porpoise leather, paper manufactured from gnaphalium, dyed furs, plants for dyeing, mineral paints, tobacco.

PRICES.

The prices of several of the articles above mentioned, are regulated by that of the foreign markets; the quantity manufactured not being sufficient to meet the demand :—Potash of commerce varies from 15s. to 25s. per cwt.; oils from cetacea and fish vary as to their price, as has already been stated in class 2, according to their different kinds and qualities, from 10½d. to 1s. 3d. per quart; oil and gums of trees from 4s. to 7s. per quart.

Porpoise leather, generally speaking, is worth 30s. per side, that is, the half of a hide; these sides are, on an average, 9 feet in length, by about 4 feet in breadth.

Mineral paints are so abundant, that the price of the raw material on the spot does not exceed 160 for every 100 of the cost of the labor; we may say that they can be had at the place of collection for 5s. per 200cwt. Canadian tobacco sells for about 7d. per lb.

It is useless to give the constantly varying prices of articles which are not exported from Canada. As regards imported articles, European prices will suffice for the information of merchants who may be desirous of shipping to Canada. It is evident that if they can do a successful business here, nothing can prevent them from over-coming all competition there, as our Tariff of Customs, which, for most imported articles, varies from 8 to 10 per cent., *ad valorem*, extends the same conditions to all.

REMARKS.

Potash and other vegetable alkalis, form a very considerable branch of the exportation of the country. Settlers, when cutting down and burning the forests, generally convert a portion of the ashes into alkalis of commerce. In 1853, there were exported to foreign countries 27,074 barrels of potash and pearlash, estimated at the aggregate value of £156,791; this makes the average price less than that quoted above. It, however, may probably not be exact. Oils from cetacea and fish, in the different states of purity, furnished for exportation, were exported during the same year to the extent of 18,225 gallons, of which the estimated value was £2,247. This amount does not include the extensive exportation by the Hudson's Bay Company; and it is but an insignificant amount, compared with the immense resources of the Gulf of St. Lawrence. The oils exhibited at Paris, in the Canadian section, are of superior quality, prepared by a special process for the lighting of light-houses; comparatively speaking, with respect to the price, these clarified oils are more economical than the common oils.

I must draw attention once more to the quality possessed by the oil of the cetacea called in Canada, little black porpoise, (*Delphinus minor*) of resisting the frost.

Leather made of the skin of the porpoise which has become altogether a new article of Canadian manufacture, deserves special mention. Looking at its strength, elasticity and beauty it offers incalculable advantages over articles of the same kind. It possesses besides, a particular property which may be of great advantage to a great many manufactures and especially Parisian manufactures, that of being of greater service than any other substance in the polishing of metals.

Paper made from the immortelle is a manufacture quite recently introduced, and one which yet requires the sanction of practice and experience. It is made of the flowers of the gnaphalium, a plant common enough in its wild state, in certain unsettled parts of America.

The dyed furs exhibited in this class are, as specimens, destined to shew the perfection of a particular process for dyeing furs. The specimens comprise red martin dyed as sables, and which are so perfect as to deceive the eye of the most competent judge. By way of comparison a red martin is attached to the martins dyed. The value of the red martin skin is on an average 10s, that of the sable 30s., that of red martin skin dyed 20s. The cost of the process of dyeing is about 3s. per skin, including the profit and loss of the dyer.

It will be sufficient to examine the beautiful bright colors of the specimens of fancy work worked by our Indians, to see that our forests are rich in the primary materials for the finest dyes.

Amongst the ochres and other mineral paints, which are found in abundance, there is a clay which furnishes a natural grey color, and which, if used, might give to commerce a common paint, at a much lower price than any of those now known in the markets. This paint is remarkably adapted for coloring and sanding buildings, and for the grounding employed in many of the arts. Canadian tobacco was formerly, under the French rule, one of the principle articles of commerce. It is certain that, were it grown with care, it would become an excellent product;· as it is now cultivated in Canada, it is a plant which requires scarcely any care, but which, nevertheless, when in good condition, is held in high favor.

ELEVENTH CLASS.

PREPARATION AND PRESERVATION OF ARTICLES OF FOOD.

SECTION 1.

Flour, Starch and their combinations.

241. *Gamble* (*W.*) Etobicoke, Upper Canada. Flour of wheat, barley, buckwheat and peas, Indian corn and oatmeal.
242. *Fitts* (*Clark*,) Montreal, Lower Canada. Biscuits.
243. *Lacombe* (*Mrs.*), St. Michel, Lower Canada. Potato starch.
244. *Lawson* (*Edward*), Toronto, Upper Canada. Wheat flour, and biscuits.
245. *Macdougall* (*J.*,) Montreal, Lower Canada. Wheat flour.
246. *Naysmith* (*John*), Toronto, Upper Canada. Biscuits.
247. *Platt* (*Samuel*,) Blenheim, Upper Canada. Wheat flour.
248. *Proctor* (*J. D.*), Montreal, Lower Canada. Indian corn flour.
249. *Robb* (*John*,) Montreal, Lower Canada. Biscuits.
250. *Southwick* (*M. B.*), Montreal, Lower Canada. Indian corn starch.
251. *Thomas* (*Richard*,) Montreal. Lower Canada. Buckwheat flour.

SECTION 2.

Sugars and Saccharine Matters.

252. *Gasse* (*Louis*,) Rimouski, Lower Canada. Maple Sugar.
253. *Redpath* (*J.*,) Montreal, Lower Canada. Maple and other sugars in the raw and refined state.
254. *Taylor* (*James*,) Hatley, Lower Canada. Maple Sugar.
255. *Valois* (*Narcisse*,) Montreal, Lower Canada. Maple sugar and syrup.

SECTION 4

Preserved and Manufactured Articles of food and sauces.

256. *Ashton* (*J. P.*,) Montreal, Lower Canada. Pickles.
257. *Bauden* (*J. & W.*,) Montreal, Lower Canada. Bear hams.
258. *Crawford* (*W.*,) Toronto, Upper Canada. Mustard.
259. *Idler* (*E.*,) Montreal, Lower Canada. Preserved meats.
260. *Leonard* (*P.*,) Toronto, Upper Canada. Chicory.
261. *Mochrie* (*George.*,) Montreal, Lower Canada. Preserved meats.
262. *Moyer* and *Keating*, Louth, Upper Canada. Dried fruits.
263. *Shaw* (*Alexander.*) Toronto, Upper Canada. Chicory.
264. *Southwick* (*M. B.*,) Montreal, Lower Canada. Preserved meats, potatoes and apples.
265. *Thomas* (*Richard,*) Montreal, Lower Canada. Sausages.

RECAPITULATION.

NAMES OF ARTICLES CONTAINED IN THE ELEVENTH CLASS.

Wheat, barley, buckwheat and pea flour, oat and Indian meals, biscuits, potato starch; maple sugar, maple syrup; pickles; hams, bear hams; mustard; preserved meats; chicory; dried fruits; preserved potatoes.

PRICES.

Flour of merchantable wheat from 20s. to 30s. per barrel, (196 lbs.) according to the quality; other flour sells from 26 to 40 per cent. cheaper, according to circumstances and quality.

Ship biscuit from 14s. to 20s. per cwt.

Maple-sugar from 3d. to 7½d. per lb.

Maple syrup about 7½d. per quart.

Hams sell, from 25s. to 30s. per 100 lbs.

Salt pork from 50s. to 60s. per barrel, (about 2 cwt.)

Salt beef from 40s. to 50s. per barrel.

It must be remarked, that the rise in the price of articles of food during the last few years, forces us to give maximum prices, which were very seldom obtained before; besides, it will be understood, that these prices are merely quoted here, for the purpose of giving a general idea of the condition of the Canadian exporting market. It will be felt that it is indeed a

difficult task, when we consider the extent of the country and the numberless fluctuations, which have taken place during the last few years. We therefore confine ourselves to quoting the prices at the shipping ports of Quebec and Montreal, with all the caution necessary on so delicate a subject.

REMARKS.

This class contains those articles, which, next to timber, furnish the greatest proportion of the exports from Canada. The following is a succinct statement of the quantity quoted from the Customs Returns for 1855:—

Flour, 790,000 barrels, (196 lbs. per barrel); biscuit, 9,608 cwt. salt pork and hams, 24,500 cwt. The other items are resolved into a number of small details, which it would be useless to give here. The value according to the returns of this year of the exportation of flour alone, is £1,062,208, making, in round numbers, an average value of 27s. per barrel. The flour comprised in the above is of superior qaulity, hardly any other than wheat flour is ever exported.

All these articles undergo inspection, and the most ample security is given to the purchaser; they are held in high repute in the English markets, to which they are almost exclusively shipped.

The maple sugar, of which we have already spoken, is not exported in quantities worth mentioning, nor is the maple syrup, which is nevertheless, in every respect, superior to the best West India molasses.

It may not be out of place to mention here that the value to Canada of the exportation of agricultural productions, which, in their classification are divided into separate classes as exported, is equal to a sum of at least £2,000,000 per annum, that is to say, an exportation to the amount of 20s. for each individual of the population, or of £6 for every head of a family, and £12 10s. for every farmer. Thus the Canadian farmer is not *l'homme aux quarante écus*, as, after having enjoyed and paid for all the necessaries of life, he makes a clear profit of about £12 10s.

By way of comparison, we give below the Liverpool market price of the two principal articles referred to, taken from an annual circular, which serves as a standard for 1853. During the autumn of that year, flour of good quality was selling in Liverpool at from £2 to £2 10s. per barrel, and salt pork of good quality, from £3 15s. to £4 5s. per barrel; thus flour was worth about £1 3s. more than it was in Canada, and for pork also there was an advance of £1 3s. per barrel. It should be remarked that this excess of price covers the freight, which was very heavy at that period, the cost of insurance, besides storage and the profits and losses of the

merchants. This shews a return profit for Europe of an average far below the rates above mentioned, which are a collection of all the maximum prices of the market, at a period of scarcity.

TWELFTH CLASS.

HYGIENE, PHARMACY, MEDICINE AND SURGERY.

SECTION 3.

Hygiene and Medicinal use of Water Vapour and Gases.

266. *Geological Commission of Canada, Montreal, Lower Canada.* Natural acid Water of Tuscarora, in Upper Canada.

SECTION 4.

Pharmaceutics.

267. *Ardouin* (A.) Quebec, Lower Canada. Collection of Medicinal plants, consisting of althœa officinalis, carthamus tinctorius, coptis trifolia, pyrola umbellata, sanguinaria Canadensis, smilax aspera.
268. *Croft* (H.) Toronto, Upper Canada. Officinal preparations.
269. *Giroux* (Olivier), Quebec, Lower Canada. Balsam and oil of spruce, sarsaparilla, dragon's blood, and gold-thread; extracts of cicuta, hyosciamus, and aconite.
270. *Lesperance* (Joseph) of St. Thomas, Lower Canada. Cod-liver oil.
271. *Nault* (Dr.), Quebec, Lower Canada. Castoreum.

SECTION 6.

Human and comparative Anatomy.

272. *Booth* (J.), Niagara, Upper Canada. Stuffed animals.
273. *Kennedy* (D.), Toronto, Upper Canada. Skins of birds from Upper Canada.
274. *MacCulloch* (Mrs.) Montreal, Lower Canada Collection of Canadian birds.

RECAPITULATION.

NAMES OF ARTICLES COMPRISED IN THE TWELFTH CLASS.

Mineral waters ; medical plants ; officinal preparations ; Canada balsam ; oil of spruce ; pharmaceutical extracts ; cod-liver oil ; castoreum ; stuffed animals ; skins of Canadian birds ; collection of Canadian birds.

PRICES.

As the greater part of the above-mentioned articles are not likely to be interesting, very speedily, as matters of commerce, I here subjoin the prices of only a few which are now known to commerce.

Canadian balsam (pine gum), 4s. 6d. per quart.
Oil of spruce, 7s. per quart.
Cod-liver oil, 4s. 6d. per quart.
Castoreum (the natural bag) 2s. 6d. per lb.
Extract of hyosciamus, 16s. per lb.
" of cicuta, 16s. per lb.
" of aconite, 24s. per lb.

REMARKS.

In the space allotted to these notes, there is but little to be said relative to the articles of this class. The only substances capable of becoming objects of export and national commerce are: the vegetable oils and gums known as Canadian balsam, oil of spruce, or Canada turpentine; cod-liver oil, and castoreum.

The gums and the turpentine produced in our forests are valuable in the preparation of the finest kinds of varnish. We can furnish at comparatively low prices, cod-liver oil, which our fishery establishments prepare in the greatest perfection. It is unnecessary to speak of castoreum, as we are alone in the production of the article as an object of commerce.

THIRTEENTH CLASS.

NAVAL AND MILITARY SCIENCE.

Section 1.

Principal elements used in Shipbuilding and the Art of Navigation.

275. *Clarke* (Mrs. James), Montreal, Lower Canada. Pulleys.
276. *Hood & Brothers,* of Montreal, Lower Canada. Brace.
277. *Macgregor* (A. & D.), Esquesing, Upper Canada. Collection of cordage.
278. *Sohier* (G. W.), Montreal, Lower Canada. Ship's figurehead in wood.

Section 2.

Swimming, Safety, or Diving Apparatus, &c.

279. *Ash* (Lieutenant), Quebec, Lower Canada. Model of a safety raft.
280. *Thomas* (Captain), Toronto, Upper Canada. Model of a safety raft.

Section 3.

Drawings and Models of the various systems of Naval Architecture adopted on the Rivers, Canals, and Lakes.

281. *Hudson* (Captain), Toronto, Upper Canada. Models of boats.
282. *Cantin* (A.), Montreal, Lower Canadn. Oars.

Section 4.

Drawings and Models of the systems of Naval Architecture adapted for Seagoing, Merchant, and Fishing Vessels.

283. *Lee* (Thomas C.), Quebec, Lower Canada. Models of clippers and steamers.

FOURTEENTH CLASS.

BUILDING MATERIALS, AND ARCHITECTURE.

Section 1.

Building Materials.

284. *Brown* (R.), from Rice Lake, Upper Canada. Marmora marble.
285. *Brown* (James), St. Catherines, Upper Canada. Cement from Thorold, and the stone in its natural state.
286. *Calway* (James), St. Joseph, Lower Canada. Granite from Vaudreuil. (Beauce.)
287. *Cheesman* (R.), Philipsburg, Lower Canada. Marble from St. Armand's.
288. *Geological Commission of Canada*, Montreal, Lower Canada. Marble from Dudswell, and Missisquoi Bay; serpentines from Brompton and Oxford; block of limestone (cut), from Gloucester, and white bricks from Westminster.
289. *Shipton Slate Company*, Shipton, Lower Canada. Roofing slates.
290. *Grand Trunk Railway Company*, Montreal, Lower Canada. Specimens of the various kinds of stone in the building of the Bridges or Railways, (Grey Granite and Limestone.)
291. *Gauvreau* (Pierre,) Quebec, Lower Canada. Quebec cement and the stone in its natural state; a pipe made of cement.
292. *Guy* (J.), Melbourne, Lower Canada. Roofing Slate.
293. *Hilliard and Dickson*, Packenham, Upper Canada. Building Stone (Limestone.)
294. *Hutchison and Morrison*, Montreal, Lower Canada. A block of Limestone (cut.)
295. *Jarvis* (W. B.), Sheriff of Toronto, Toronto, Upper Canada. Building materials. (Bricks, &c.)
296. *Keefer* (Samuel), Brockville, Upper Canada. Building Stone for the Bridges on the Brockville and Arnprior Railway, (Sandstone and Limestone.)
297. *Keefer* (Thomas C.), Montreal, Lower Canada. Blocks of Limestone (cut) and hardened hydraulic cement.
298. *Leeming* (John), Montreal, Lower Canada. Blocks of Limestone, cut with a machine.

299. *Lemieux* (Honorable François), Quebec, Lower Canada. Granite and other building stone from Lorette, Pointe aux Trembles, and Cap Rouge.
300. *Leslie* (James), Sherbrooke, Lower Canada. Roofing Slates.
301. *Little*, Paris, Upper Canada. Hydraulic Limestone.
302. *MacDonald*, Chats, Upper Canada. Blocks of Limestone (cut.)
303. *Maclaughlin* (D.), Bytown, Upper Canada. Marble and Building Stone from Arnprior.
304. *Perry* (Edmund), Brockville, Upper Canada. Blocks of Limestone (cut.)
305. *Primmerman* (J.), Barnston, Lower Canada. Barnston Granite.
306. *Tardif* (Joseph), Tring, Lower Canada. Roofing Slates.
307. *Townley* (Mrs.), Toronto, Upper Canada. White Bricks.
308. *White* (P.), Pembroke, Upper Canada. Building Stone (Sandstone.)

Section 2.

Various branches of Industry connected with Building.

309. *Fox* (D. W.), Toronto, Upper Canada. Specimens of Slate Roofing.
310. *Ostell* (J.) *and Co.*, Montreal, Lower Canada. Doors, Blinds, and Wooden Boxes. A model of the Court House at Montreal.
311. *Murphy* (J.), Toronto, Upper Canada. Specimens of Painting in imitation of wood and marble.

Section 5.

Works connected with inland Navigation.

312. *Office of Public Works*, Quebec, Lower Canada. Models for Canals and Bridges.

Section 8.

Bridges.

313. *Director of the Grand Trunk Railway*, Montreal, Lower Canada. Model of the Victoria Bridge.

Section 10.

314. *Thomas* (W.), Toronto, Upper Canada. Architectural designs, and model of a Monumental Obelisk.

FIFTEENTH CLASS.

STEEL AND ITS PRODUCTS.

SECTION 5.

Steel Tools.

315. *Date* (H. H.), Galt, Upper Canada. Edged Tools.
316. *Dawson* (J.), Montreal, Lower Canada. Set of Planes.
317. *Higgins* (J. J.), *and Co.*, Montreal, Lower Canada. Axes.
318. *Jones* (D. J.), Gananoque, Upper Canada. Shovels and Spades.
319. *Parkin* (W.), Montreal, Lower Canada. Iron Shovels.
320. *Scott* (Robert), Montreal, Lower Canada. Axes and Augers.
321. *Wallace* (W.,) Montreal, Lower Canada. Set of Planes.

SIXTEENTH CLASS.

GENERAL METAL WORK.

SECTION 1.

Elaboration of Metals and Alloys by Casting.

322. *Ladd* (C. P.,) Montreal, Lower Canada. Cast Metal Coffin.
323. *Rodden* (W.,) Montreal, Lower Canada. Castings.
324. *Rice* (W. H.,) Montreal, Lower Canada. Sieve and Wire Cloth.

SECTION 5.

Ironmongery and Nail making.

325. *Peck* (Thomas) *and Co.*, Montreal, Lower Canada. Nails.

SEVENTEENTH CLASS.

GOLDSMITHS' WORK, JEWELLERY, MANUFACTURE OF BRONZES.

SECTION 3.

Goldsmiths' Work, and Precious Metals.

326. *Bohle and Hendery*, Lower Canada. Silver Plates.

EIGHTEENTH CLASS.

GLASS AND POTTERY.

SECTION 2.

Window and Mirror Glass.

327. *Spence* (J. C.,) Montreal, Lower Canada. Stained Glass.

RECAPITULATION.

NAMES OF ARTICLES CONTAINED IN CLASSES XIII TO XX INCLUSIVE.

Pulleys, braces, collections of cordage, figure-heads for ships, models of rafts for salvage, models of boats, oars, models of ships and steamboats, marble and building stone, cements, slates, bricks, doors, windows and Venetian blinds, paintings on wood, models of canals and flood gates, model of the Victoria Bridge, architectural designs and design for a monument; edged tools, cabinet maker and joiners' tools, axes, shovels, cast-iron coffin, cast-iron ornaments, metal plates for dropping seeds, rails, articles of jewellery, stained glass.

PRICES.

In order to be consistent in following out the plan of noticing only those articles under this head which may become immediately interesting to the commercial world, we have but few of the preceding to particularise, in relation to their prices. The succeeding remarks will convey all other information which is of value.

Boat oars 1s. 6d. to 3s. each, according to size.

Woodwork of sashes 9s.

Woodwork of doors 19s.

Chopping Axes of modern patterns and of the weight of 3½ lbs. 5s.

Large smoothing Axes 10s.

The price of other tools in proportion.

REMARKS.

The specimens of cordage exhibited are of good quality, and give us reason to regret that the cultivation of hemp has been almost abandoned in Canada. Under the French Government, the exportation of this article was an important item in the trade of the colony ; the soil, climate and degree of humidity being highly favorable to its growth.

The perfection to which naval architecture has arrived in Canada is shewn by the models of ships and steamboats exhibited. It must be recollected that Quebec is one of the largest ship-yards in the world, if it be not, indeed, the largest of all. There were built there in 1853, fifty sea-going ships, of the aggregate tonnage of 49,541 tons, of the value, at the high rates then current in the English market, of £600,000. I invite attention to an apparatus for the saving of life and property, the simplicity and efficiency of which are well worthy of notice. This admirable invention would, if adopted, be a safeguard rendering loss by shipwreck almost impossible.

The models exhibited, of some of our great public works and buildings, the specimens of building stone and other materials were sent principally with a view to shew the state of the industrial arts in the colony, and its material resources. The plans and drawing of our large canals and of the Victoria Bridge works which may be termed gigantic in character are calculated to produce some degree of astonishment in the public mind. Among the building materials some very fine hydraulic cement will be noticed. The edged and other tools have attracted a good deal of attention both by the perfection of the workmanship and their cheapness, both qualities so remarkable that it is needless to invite attention to them.

We now come to the wooden manufactured articles, namely, the doors, window-sashes, oars, turners', coopers', and other wares of various kinds. The great importance of this branch will be appreciated, when it is recollected that our vast forests are intersected in all directions by large rivers, capable of floating heavy bodies, navigable, and abounding with water-powers. These circumstances operating with the vast means cf transport adapted to the most bulky articles of commerce, give to Canada great advantages over every other country, and truly may we maintain, that we can send to Europe, the timber, or the articles manufactured from it, at paying prices, far below those of any other country. Packing-cases are sent from Canada to the East Indies, the cost of which answers the views both of the producer and the customer.

This is in the natural order of things, and is not the result of European patronage, although the nations of Europe are more interested in the matter than we, since it is their wants which are to be supplied. On comparing the returns of the exports for 1851 with those for 1853, the annual increase of this branch of our industrial prosperity will be strikingly apparent: the exportation of standard staves, which, in 1851, amounted in round numbers to £20,500, attained the value of £100,000 in 1853; that of ship timbers, which in 1851, did not exceed £9,450, amounted in 1853 to £27,000; and the apparently unimportant article of boat oars, which, in 1851, was not mentioned in the return, had in 1853, attained the value of £3,650.

When we say that all these articles are shipped for England, it is to be understood that the other countries of Europe might purchase them with equal advantage, inasmuch as the English occasionally re-export them to other countries.

TWENTIETH CLASS.

WOOLLEN AND WORSTED MANUFACTURES.

Section 2.

Raw Wool and Hair.

328. *Carr*, (*J.*), Toronto, Upper Canada. Horse hair.

Section 5.

Fabrics of Wool, carded and milled.

329. *Barber and Brothers*, Esquesing, Upper Canada. Cloths. Wool.
330. *Bean*, (Simon), Hatley, Lower Canada. Stockings and woollen shawls, counterpanes and flannels.
331. *Bouchard*, (Mde.), Saint Vallier, Lower Canada. Woollen articles.
332. *Bryce, McMurrich & Co.*, Toronto, Upper Canada. Woollen cloths.
333. *Colby*, (Mrs.), Hatley, Lower Canada. Stockings, Shawls, Flannel.
334. *Lacombe*, (Mde.), St. Michel, Lower Canada. Country Woollen Cloth.
335. *Torrey*, (D.), Newmarket, Upper Canada. Cloths.
336. *Valois*, (Narcisse), Montreal, Lower Canada. Woollen cloth.
337. *Walker*, (Robert), Toronto, Upper Canada. Cloths.

TWENTY-SECOND CLASS.

FLAX AND HEMP MANUFACTURES.

SECTION 4.

Yarns and Threads of Linen, Hemp, and other fibres, &c.

338. *Sisters of Charity*, Montreal, Lower Canada. Linen Thread.
339. *Bouchard*, (Mde.), St. Vallier, Lower Canada. Linen Thread.

TWENTY-THIRD CLASS.

HOSIERY, CARPETS, EMBROIDERY, AND LACE WORK, GOLD AND SILVER FRINGES, ETC.

SECTION 3.

Knitted Work.

340. *Ebenezer*, (S.), Toronto, Upper Canada. Woollen Gloves.
341. *Harper*, (Mrs.), Etobicoke, Upper Canada. Woollen Stockings.
342. *Moore*, (Mrs.), Etobicoke, Upper Canada. Woollen Stockings.
343. *Masson*, (Mrs.), Etobicoke, Upper Canada. Woollen Stockings.
344. *Silverthorn*, (Mrs.), Cooksville, Upper Canada. Counterpanes.
345. *Stiffel*, (Mrs.), Toronto, Upper Canada. Counterpanes.

SECTION 6.

Embroidery.

346. *Langevin*, (Mde.), Montreal, Lower Canada. A Table-cover.
347. *Vancelow*, (Mrs.), Montreal, Lower Canada. A Table-cover.

SECTION 7.

Lace Work.

348. *Senkler* (Miss), Brockville, Upper Canada. Needle-work.

RECAPITULATION.

NAMES OF ARTICLES COMPRISED IN CLASSES XX TO XXIII INCLUSIVE.

Horse-hair, cloths, and wools, woollen stockings, woollen shawls, woollen counterpanes, flannels, woollen fabrics, termed country cloths, linen thread, coarse linen cloth, thread, knitted articles, thread-lace, woollen gloves, woollen and thread counterpanes, table-covers, knitted articles.

PRICES.

The ordinary cloths and stuffs of domestic manufacture, or produced by machinery are sold from 3s. 3d., to 10s. per yard.

Raw wool for from 9½d. to 1s. per lb.

Flax prepared for spinning, from 4d. to 6d. per lb.

Common flannel from 2s. to 2s. 6d. per yard.

Coarse linen cloth, from 1s. 3d. to 2s. per yard.

The articles of hosiery, embroidery, and domestic manufacture, have no fixed value in the market.

REMARKS.

The articles in the last mentioned classes were sent to the exhibition merely as specimens of the industrial skill of this country, in that particular department. It is not to be expected that a small community, fully occupied in the ordinary pursuits of life, should have leisure to cultivate those arts which have for their object the rich and luxurious fabrics of European service. Enough for us that we can produce good coarse cloths of woollen and linen materials, which are worthy of notice (particularly those made by farmers' wives in their own abodes) as being adapted to make clothes for the working man, and for the low price at which they can be afforded. A few manufacturers do, however, aim at producing finer and more delicate fabrics.

Among the articles exhibited there are specimens of knitted and lace-work, caps and other matters in wool, cotton and linen, which are not devoid of interest in respect both of the material and the workmanship. These articles are made at home by farmers' wives; and it is to be observed that such occupations are considerable sources of wealth to their families, and that, moreover, they have a tendency to improve the breed of sheep by the spirit of rivalry which they produce.

TWENTY-FOURTH CLASS.

FURNITURE AND DECORATION.

SECTION 3.

Furniture and Cabinetware for Domestic purposes.

349. *Bevis* (J.), Hamilton, Upper Canada. Round table.
350. *Hilton* (J. & W.), Montreal, Lower Canada. Sofa and chairs.
351. *MacGarvey* (Owen), Montreal, Lower Canada. Rocking chairs.

SECTION 4.

Fancy Furniture and Decorative Articles, in the preparation of which valuable woods, Ivory, or Mother-of-Pearl are employed, or which are rendered costly by Carving or Inlaid work, and the addition of Ornaments of value.

352. *Drum* (William), Quebec, Lower Canada. Chair covered with leather, embroidered with moose hair.
353. *Rhodes* (Captain), Quebec, Lower Canada. Chair covered with leather, embroidered with moose hair.
354. *Spence* (J. C.), Montreal, Lower Canada. Work table of glass, painted and gilded.
355. *Widder* (Miss), Toronto, Upper Canada. Drawing-room chair.

SECTION 5.

Decorative Furniture of Wood, or Moulded substances, Gilded or Japanned articles, &c.

356. *Cushing* (Mrs.), Montreal, Lower Canada. Fancy frame.
357. *Hare* (Albert), Montreal, Lower Canada. Looking glass frame.

SECTION 6.

Articles of Furniture made of Reeds, Straw, &c., Household appendages, Domestic articles.

358. *Boyd* (John), Montreal, Lower Canada. Brushes.
359. *Jenkin* (Thomas), Montreal, Lower Canada. Brushes and bristles.
360. *Nelson & Butters*, Montreal, Lower Canada. Brooms.

SECTION 7.

Tapestry Work.

361. *Davis* (Mrs.), Montreal, Lower Canada. Needle work.

RECAPITULATION.

NAMES OF ARTICLES IN CLASS XXIV.

Round table of different woods, sofa and chairs, rocking chairs, chairs covered with embroidered leather, glass work table painted and gilded, drawing-room chair, pier glass frame, picture frames, brushes, brooms, decorative needle-work.

REMARKS.

The articles exhibited by Canada in this class, while they serve as specimens of cabinet and other work connected with household furniture, present at the same time the qualities of our useful woods. The round table shews them all united in a sort of mosaic work: visitors will remark the beauty of our bird's eye maple, our black walnut, and, more particularly, of our curled maple, a fine specimen of which is presented in the boudoir chair.

Upon inspection of a magnificent couch of bird's eye maple, among the inimitable productions of Parisian cabinet making, I was informed, that while the beauty of this wood for purposes of cabinet making and room pannelling was generally appreciated, it was excluded from general use, on account of its high price, and the difficulty of procuring it. I was surprised at this information, from the fact that this wood is so abundant in Canada as to be used for fuel, and might be furnished in Europe at a price hardly exceeding that given here for pine. The shipment and unloading of timber makes a considerable item in the price which it attains in the market; these woods being bought second or third hand in the English timber market, all the charges for transhipments, commissions, profit and loss, uncertainty, and the delay, and inadequacy of such a source of supply, must be added to the price which it is really worth.

TWENTY-FIFTH CLASS.

ARTICLES OF CLOTHING AND OF FASHION AND FANCY.

SECTION 2.

Linen Drapery, Stays, Braces, and Garters.

362. *Smiley* (Robert), Hamilton, Upper Canada. Shirts.

SECTION 3.

Coats and other Garments.

363. *Gauthier* (Edward), Montreal, Lower Canada. Coats of Home made Cloth.
164. *Henderson* and Company, Quebec, Lower Canada. Cloth great coat trimmed with beaver.
365. *Wheeler* (Thomas), Toronto, Upper Canada. A feather mantilla.

SECTION 4.

Boots, Shoes, Gaiters and Gloves.

366. *Barbeau* (Joseph), Quebec, Lower Canada. Caribou and porpoise leather boots.
367. *Eckart* (Isaac), Quebec, Lower Canada. Snow shoes and winter boots.
368. *Fisher* (Mrs.), Quebec, Lower Canada. Moose hair gloves.
369. *Mercier* (D.), Quebec, Lower Canada. Costume of a Huron Chief.
370. *Merrifield & Sheridan*, Toronto, Upper Canada. Boots.
371. *Pollard* (Mrs.), Hamilton, Upper Canada. A pair of worked slippers.
372. *Price* (David), Chicoutimi, Lower Canada. Moccasins embroidered with silk.
373. *Scandrett & Robinson*, Toronto, Upper Canada. Boots.
374. *Smith & Co.*, Montreal, Lower Canada. Boots and shoes.
375. *Taché* (J. C.), Rimouski, Lower Canada. Moccasins partly covered with Indian rubber so as to resist cold and damp.

SECTION 5.

Hats and Caps.

376. *Couture* (Mrs.), St. Ambroise, Lower Canada. Hay and straw hats and other articles.

377. *Martel* (Mrs.), St. Ambroise, Lower Canada. Hay hats and articles of the same material.
378. *Martel* (Miss), Quebec, Lower Canada. Hay hats and other articles of the same material.
379. *Ranger* (Mrs.), Acadie, Lower Canada. Straw hats.

SECTION 7.

Fans, Screens, Parasols, Umbrellas, Walking Sticks.

380. *Jones* (Mrs. J.), Montreal, Lower Canada. A screen embroidered with wool.
381. *Partenais* (Miss P.), Industry, Lower Canada. Embroidery in wool.

SECTION 11.

Sheaths, Morocco work, Pasteboard work, Basket work, &c.

382. *Malo* (l'Abbé), Bécancour, Lower Canada. Indian curiosities and antiquities.
383. *Jones* (Peter), Brantford, Upper Canada. Indian Curiosities.
384. *Mercier* (D.), Quebec, Lower Canada. Fancy work by Indians.
385. *Rhodes* (Mrs.), Quebec, Lower Canada. Embroidered bark-work.
386. *Tanguay* (l'Abbé), Rimouski, Lower Canada. Indian curiosities.

RECAPITULATION.

NAMES OF ARTICLES CONTAINED IN CLASS XXV.

Shirts, coats of home-made cloth, beaver-skin great coat, a feather mantilla, caribou skin hunting boots, riding boots, porpoise leather boots, snow-shoes, boots of seal-skin dressed smooth, moose down gloves, dress of a Huron Chief, boots and shoes, embroidered moccasins, moccasins partly covered with Indian rubber, hay and straw hats, an embroidered screen, embroidery in wool done by the needle, Indian curiosities, and antiquities, Indian ornaments, dress and furniture, embroidery upon bark.

PRICES.

It would be impossible to give so exactly as to be practicably useful, a detailed statement of the prices of most of the articles above mentioned, which being as they are, ornamental and fancy articles, are valued in proportion to the taste, the work and elaborate elegance with which they are prepared. The following are the ordinary prices of some of them.

A winter suit of good and strong home-made cloth suitable for a farmer, costs £2 10s.

Boots called *Canadian boots* for working, 2s. 6d. per pair.

An ornamental over-coat of beaver-skin, from £10 to £15.

First class hunting boots of caribou leather, £2 10s.

Riding boots and trowsers (called Crimean,) of caribou, £3.

Ornamented slippers embroidered with moose hair, upon an average 25s.

REMARKS.

It is needless to offer remarks on the beauty and comfort of beaver-skin coats, or the difference between the European prices of such articles and the prices given above.

The boots made of caribou-skin are light and water-proof, a high degree of excellence in those respects; and it is certain, that the sportsman will look in vain elsewhere for any equal to those exhibited by Canada. Such boots would be incomparably superior to all others for the use of Engineers and Officers in the army, engaged in the inspection of works, which compel them to remain a long time on wet and miry ground.

Another description of boots is made of common leather. These are termed Canadian or Indian boots, and are used only by farmers, lumbermen, fishermen and sportsmen, in their various pursuits. They cost only 2s. 6d., and are admirably suitable for the laboring-man, the sailor and the soldier;—English seamen and soldiers when in Canada, use them in wet or cold weather.

A partial application of caoutchouc may be seen in a species of moccasinof dressed moose-skin, a very suitable shoe for town or country; as a protection against cold and damp this shoe is invaluable.

The gloves of moose down are a specimen of a curious material. Moose down is the name given to a species of wool, covering the skin of this huge quadruped, beneath the long hair. This textile and felt-like substance, is of a peculiar nature, and might possibly be adapted to some special and profitable use.

The manufacture of hay and straw hats is rapidly increasing in Canada, of which fact the specimens exhibited are proof. In the Report of Exports for 1851, this branch of industry does not appear, yet in 1852, it amounted to £2,000, and in 1853, to £6,200.

The curious and elegant articles of feather work, moose hair, porcupine-quills, and bark-work, are attractive to visitors; and it must be confessed that there is in the ornamental articles and those pertaining to the

toilet, to be found in this collection, a degree of taste and refinement which excites our wonder, when we consider that all this is the untaught art of the aborigines of the shores of the St. Lawrence.

TWENTY-SIXTH CLASS.

DRAWING AND MODELLING APPLIED TO INDUSTRY, TYPOGRAPHY, AND COPPER PLATE PRINTING, PHOTOGRAPHY, &c.

SECTION 1.

Writing, Drawing, and Painting.

387. *Armstrong* (W.), Toronto, Upper Canada. Drawings in water colors.
388. *Shephard* (Miss) Montreal, Lower Canada. Drawings of Canadian fruits and vegetables.
389. *Tully* (Kivas), Toronto, Upper Canada. Plans.

SECTION 2.

Lithography, Autography, and Stone Engraving.

390. *Whitefield,* Toronto, Upper Canada. Lithographic drawings of Canadian Cities.

SECTION 4.

Photography.

391. *Doane* (J. C.), Montreal, Lower Canada. Photographs.
392. *Palmer* (E. J.), Toronto, Upper Canada. Daguerreotypes.

SECTION 6.

Stamps and Moulds.

393. *Cochrane* (Miss), Quebec, Lower Canada. Fruits in wax-work.
394. *Sœurs de la Providence,* Montreal, Lower Canada. Fruits and vegetables in wax-work.
395. *Wheeler* (J.), Toronto, Upper Canada. Seal engraving.

SECTION 7.

Printing.

396. *Rose* (H. & G. M.). Montreal, Lower Canada. Specimens of typography.
397. *Salter* & *Rose,* Montreal, Lower Canada. Specimens of typography.

398. *Smith* (W. W.), St. Johns' Lower Canada. Specimens of typography.
399. *Starke and Co.*, Montreal, Lower Canada. Specimens of typography.

SECTION 8.

Book-binding.

400. *De Puibusque* (Adolphe), Bookbinding in porpoise leather.
401. *Mackay* (Mrs. W. S.), Montreal, Lower Canada. Books.
402. *Miller* (R. & A.), Montreal, Lower Canada. Specimens of bookbinding.
403. *Young* (A.), Montreal, Lower Canada. Specimen of book binding.

TWENTY-SEVENTH CLASS.

MANUFACTURES OF MUSICAL INSTRUMENTS.

SECTION 5.

Stringed Instruments, with keyboards.

404. *Hood* (T. D.), Montreal, Lower Canada. Piano-forte.

SECTION 8.

Manufactured articles and accessories.

405. *Hood* (T. D.), Montreal, Lower Canada. Piano-forte and sounding board.

RECAPITULATION.

NAMES OF ARTICLES CONTAINED IN CLASSES XXVI AND XXVII.

Drawings in water-colors; drawings of Canadian fruits and vegetables; architectural designs, lithographs representing some of the cities of Canada; photographed portraits; fruit and vegetables in wax-work; seal engraving; specimens of typography; book-binding in porpoise leather; specimens of book-binding; an upright piano and sounding board.

REMARKS.

All the articles above named, have been sent for the purpose of giving an idea of Canadian scenery or of illustrating the degree of excellence attained in Canada in the different branches of art referred to.

The collections of drawings in water-colors, and of Canadian fruits and vegetables in wax-work also serve to complete the exhibition of the productions of agriculture and horticulture in this country. A specimen of book-binding with porpoise leather is another evidence of the beauty of this new and hitherto exclusively Canadian production.

TWENTY-EIGHTH CLASS.

PAINTING, ENGRAVING AND LITHOGRAPHY.

Section 1.

Drawing and Painting.

406. *Kane* (Paul), Toronto, Upper Canada. Oil paintings.
407. *Ryland*, (J. H.), Montreal, Lower Canada. Oil paintings.

REMARKS.

In the department of Fine Arts, Canada has sent but a few small paintings selected from a remarkably interesting collection of views of the scenery of western America. Mr. Paul Kane, a young travelling artist, who has travelled for seven years over the extensive prairies of America, on both sides of the Rocky Mountains, has collected from amongst the sixty tribes he visited, a most complete museum of the utensils, dress, tent furniture, arms, tools, &c., used by these aborigines. He has also painted the portraits of the chiefs of these tribes, taken drawings of the scenery and sketches of their manners and customs. Mr. Kane will very shortly be able to publish an account of his travels, accompanied by plates representing his rich collection. This work will be the more valuable from the fact, that the Indian tribes are fast disappearing, or at least are losing every day the peculiar and picturesque manners and customs which characterize them.

In terminating my remarks upon this class, I think it my duty to state that we have in Canada, artists who could have sent to Paris, paintings which would not have been without merit. Two of these artists (*) ob-

(*) Messrs. Plamondon and Hamel: a third, Mr. Bourrassa, has since joined them, having completed his studies in Rome and Florence. We may mention the name of one more Canadian artist, Mr. Falardeau, a native of Quebec and at present residing in Florence.

tained success as pupils in the schools of Rome and Paris, but their excessive modesty would not permit them to contribute to the exhibition. I mention this fact as a further proof that Canada is no longer an uncivilised country.

CONCLUSION.

The few preceding remarks are intended as a sequel to the information contained in the different pamphlets distributed during the exhibition in relation to the resources of Canada. Their object is merely to give that general information which is calculated to attract the attention of business men and to allow them to judge *à priori* of the advantages which might result from commerce with this country. It will be seen that the data furnished relate particularly to Canadian articles of exportation, and the reader will therefore conclude that we import all those articles which we do not export.

All these observations serve to prove one thing, namely, that Canada can supply Europe with inexhaustible quantities of timber of the different varieties mentioned, with the produce of fishing and the chase, with minerals in their natural state, more especially with copper at comparatively advantageous return prices.

A similar trade has been carried on between England and Canada for nearly a century, which has increased year after year to such an extent that the English market is no longer sufficient as a channel for certain classes of produce. During last and this year, for example, commercial affairs in Canada have suffered considerably from the circumstance of our having over charged the English timber market with our produce, which now encumbers the timber wharves of many of the ports of England, to that extent, that business men say, that Canada has provided for her timber consumers, one year's supply in advance.

A great number of persons from France and other continental countries have been informed by me of the possibility of importing these articles direct to their respective countries, certainly what is possible as regards transport, with respect to Liverpool and London, is equally possible with respect to Havre and Saint Malo, and what the English mercantile navy is able to accomplish is equally possible for French merchant ships, the navigation of the St. Lawrence being free; charges for freight may be said to be equal to all the European ports on the Atlantic seaboard.

It may be said that the average charges for freight vary from 25s. to 35s. per ton measurement, subject always to the variations arising from the nature and bulk of the merchandize to be shipped.

OBSERVATIONS

ON

THE EXHIBITION.

BY

J. C. TACHÉ, ESQ.

NOTE.

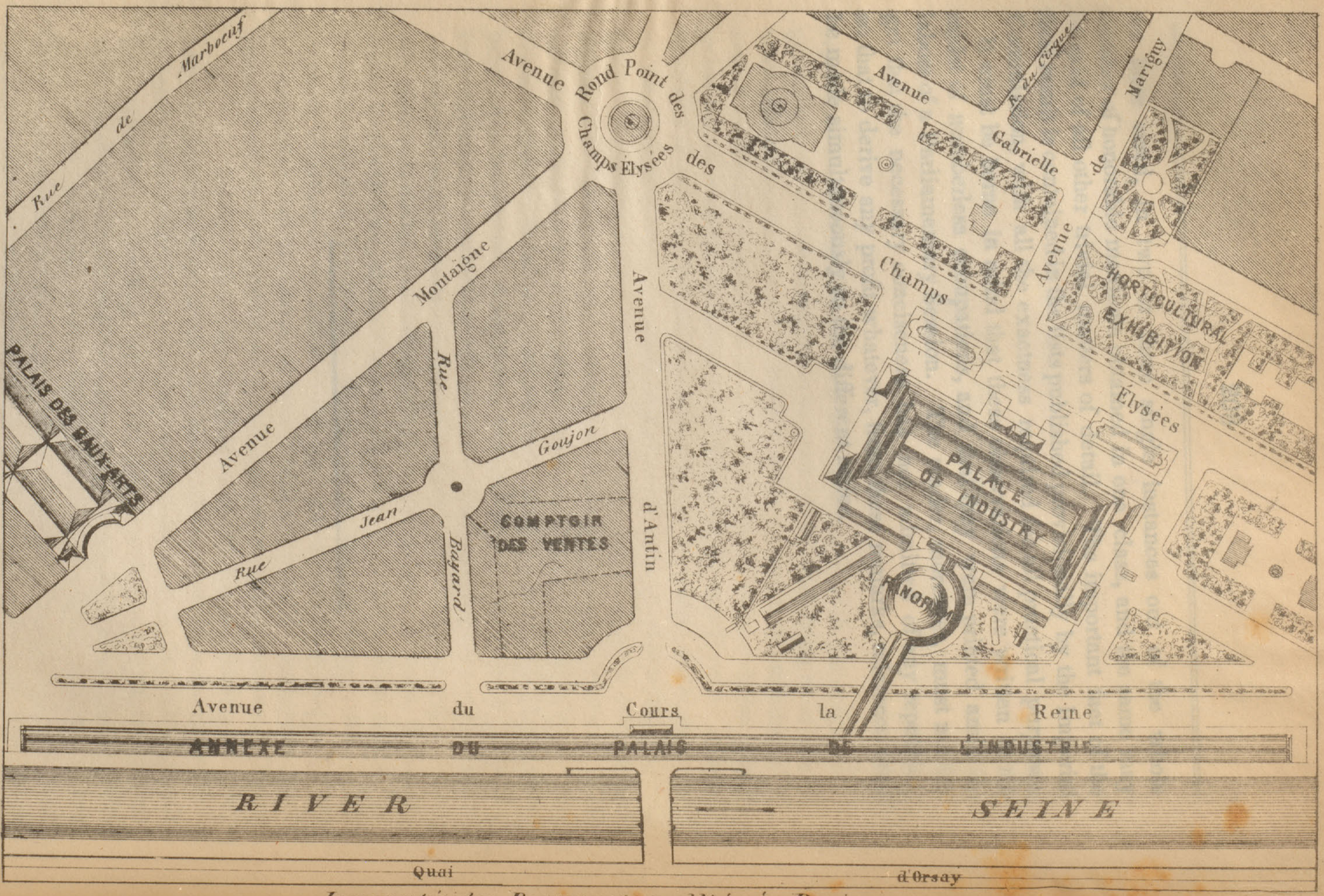
The following details in connection with the universal Exhibition, have already been published in the form of correspondence addressed during the Exhibition, to a portion of the French Press in Lower Canada, some of these articles have been republished in the English papers of Lower Canada. The House of Assembly having ordered them to be printed to form part of the history of the Canadian Exhibition of 1855, it has been thought advisable to alter the original form of these sketches and to make some changes in the order in which they were first written. They have therefore been divided into four series, each composed of a certain number of chapters. The first series contains an examination, very incomplete no doubt, or to speak more correctly, a list of the names of the principal works exhibited in the Fine Arts Palace; the second is a sort of report of a rapid ramble made through the exhibition of manufactured productions; the third consists of a series of observations upon the articles exhibited in each class of the official classification, reflections upon the exhibition in its relation to and effect upon Canada, and destined to the fullest extent possible to place the people of the Country in possession of the principal additions to science, which might be a source of profit to them hereafter. Lastly, the fourth series relates to the exhibition of breeding animals which was intended by the French Government to complete the exhibition of 1855 in connection with Agriculture.

The official statistics relating to the Exhibition not being complete and finally published, it is more than probable that the figures contained in these remarks, in so far as they relate to the number of exhibitors and other details of this kind, although derived from the best sources, may not be mathematically correct; the small errors, however, which may have slipped into the memoranda furnished by the authorities during the exhibition, cannot in any way affect the conclusions to be drawn from the general results of the exhibition; for example, looking upon the matter in this light, it matters very little whether we state that there were a hundred exhibitors more or less out of the twenty thousand or so who contributed to the Industrial Exhibition, it is of no practical importance, whatever, if

we have erred, in two or three single instances out of the whole number of honorable mentions obtained in one class, and the same may be said of all other trivial matters of detail. The important fact of the final result is contained in the lists published provisionally by the Imperial Commission, with all the exactness required for all practical purposes.

It must be borne in mind that these observations were written in the midst of numberless occupations, and that they were printed amid the labors of a Parliamentary Session. The reader, moreover, must not forget that the necessary conciseness has not admitted of any repetition, so that to derive any profit whatever, from these remarks, reference must be made simultaneously to the different series.

GENERAL PLAN OF THE UNIVERSAL EXHIBITION OF 1855.



Imprunté des Documents publiés à Paris.

FIRST SERIES.

PRINCIPAL WORKS EXHIBITED IN THE PALACE OF THE FINE ARTS.

I.

GENERAL DATA.

The exhibition of the Fine Arts, was held in a building erected apart from the others, situated a short distance from the other buildings dedicated to Industry; placed there out of the way, with its severe and simple outlines removed from the noise of the machinery and the hissing of the steam, it offered to the works of intellect, a quiet and secure resting place, suitable to them in every respect. The building is in the form of a parallelogram surrounded on the exterior by a gallery; the *façade* is in the form of a semi-circle composed of seven columns almost destitute of ornament. Light is admitted to the rooms and galleries from the roof, in a manner to afford as equal a distribution of it as possible over the different works of art. The architect of the Louvre, Mr. Lefuel, had been charged with the preparation of the plans of this edifice, the interior surface of the walls of which, present a total space for exhibition of about 140,000 square feet.

As a matter of courtesy, the contributions of foreign nations were placed at the entrance to the building and appeared consequently at the head of the catalogue; the first pictures therefore which struck the eye of the visitor were those from Denmark, Sweden, Norway, Tuscany, Peru, Turkey, and the States of the Church, the great gallery to the right was occupied by Great Britain, and that to the left by Piedmont, Belgium and Holland; French and Prussian paintings occupied, the former several large rooms in the middle of the building, and the latter a square room near the vestibule; the pictures of other nations were hung to the sides of other galleries on the first story; the galleries contained drawings, engravings, water colour drawings, lithographs and crayon drawings. The number of exihibitors belonging to all nations was 2,029, and the total number of works exhibited including cartoons, sketches, &c., &c., was, according to the official catalogue 5,182, which were divided pretty nearly as follows

among the different nations: France, 2,867, Great Britain, 780, Belgium, 269, Prussia, 225, Austria, 217, Holland, 131, Spain, 122, Switzerland, 110, Bavaria, 76, Sweden and Norway, 60, Denmark, 52, United States, 44, Saxony, 33, Sardinia, 27, Portugal, 27, States of the Church, 25, Duchy of Baden, 22, Hawratic Towns, 11, Two Sicilies, 6 Peru, 5, Turkey, 3.

Of the 2,029 contributors to the Fine Arts section, 1,230 were painters, 323 sculptors, 184 engravers, 163 architects, 40 lithographers and 89 artists in water colors, crayons, &c.

To form a judgment of the number of prizes obtained as compared with the number of exhibitors, I give below the total number of contributors and prizes obtained in each of the principal countries, the number of prizes includes the "honorable mentions."

The reader must understand that in giving these statistics, no attempt is made to give any opinion as to the intrinsic merits of the different schools of painting and sculpture, some of which moreover have abstained from exhibiting. No, Art is not to be estimated by figures, the voice of posterity or what is the same thing, the unanimous agreement of human opinion are the only consecrations of genius; when the great medal of honor therefore was awarded to Messrs. Ingres, Delacroix, Cornelius and other historical painters, and at the same time to painters of other classes of subjects, it is by no means less certain, that the one class is widely separated from the other. But as a fact of general interest and curiosity the lists which follow have undoubtedly been of high standing. In these details are included the prizes awarded in the three classes, including painting, sculpture, engraving and architecture.

Names of Countries.	NUMBER OF EXHIBITORS.	PRIZES OBTAINED.
France	1063	294
Great Britain	291	66
Belgium	42	30
Prussia and Zollverein	215	35
Austria	109	15
Holland	88	9
Italy	44	5
Switzerland	46	8
Sweden and Norway	37	6
Spain	48	4
Denmark	32	4
United States	12	3
Ottoman Empire	2	1

Of these four hundred and eighty-prizes of all classes, sixteen were of a peculiar character, I refer to the sixteen great medals of honor awarded in the three Classes forming the Fine Arts section.

Of these sixteen great medals of honor, eleven were obtained by natives of France, six of whom were painters, three sculptors, one an engraver, and one an architect. England obtained two of these medals, one for painting and the other for architecture. Belgium and Prussia each obtained one for painting, and Saxony one for sculpture.

Unfortunately the Fine Arts Exhibition, magnificent, though it was, did not attain sufficient proportions to render it the complete expression of the state of the arts, at the present time, by reason of the numbers who abstained from exhibiting. Italy, that classic land of the beautiful, the *alma parens.* of the art, has, it may be said, altogether abstained from exhibiting. We have had no opportunity of beholding the works of her Minardi, Gagliardi, Bezzuoli, Palagie, Agricola, Grigoletti, Lipparini, Goghetti, Capalti, Consoni, Chierici ; of her sculptors Tenerani, Caccîatore, Tadolini, Jacometti, her celebrated engraver Mercuri and many others. Whatever may be the causes of their absence it is not the less to be regretted ; although the French and German schools contributed very largely, they also suffered considerably from some of their principal members refraining from exhibiting ; the most to be regretted among these, being the great French Masters, Messrs. Paul Delaroche, and Arry Sheffer, and of the German school, Messrs. Overbeck, Schnoor de Carolsfeld, Bendemann and Mr. Gallait of Belgium, absences which the Parisian press has characterized as regards some of them by the appelation of " *abstentions dédaigneuses.*" In French sculpture David d'Angers, since dead, did not exhibit. The English and American sculptors, Gibson and Power, who live in Italy, and for Italy, refrained from exhibiting with the rest of the Italian school to which they belong. Italy being thus absent from the assembly, the French, German, Belgian and English schools remain distinguished one from the other by clearly defined characteristics. It has been said of them, " The exhibition is divided into four thoroughly distinct zones, England, Belgium, Germany and France. England represents individuality ; Belgium, skill in execution ; Germany, beauty of conception, and France eclectism."

At present the French school takes the highest rank, both on account of the number of its great masters and by its fecundity in all the branches of the art ; this superiority as a general fact, cannot be contested. It would be difficult to define the ruling quality in the French school, for the simple reason that its illustrations have taken different routes, all however, leading to glory, and the word eclecticism which has been used to characterize this school, is applicable to French art in its entirety, and must not be taken as

fixing an uniform standard established from the average of the elements of the art, and adopted almost unanimously by its artists.

The difference is as great, for instance, between the pencils, the brush, and the pallets of Messrs. Ingres and Eugène Delacroix, as between the composition, drawing and coloring of the German school, and those of the other schools.

The German school possesses a much more defined character, in so far as relates to the common resemblance between its leading masters ; the great German works have certain national indications, which cause them to be at once recognized as belonging to a distinct class. This school devotes itself more particularly to the ideal, and is distinguished by the class of subjects of the greater part of its works, and like the literature of Germany disdains the scenes of real life, striving rather to develop symbolical theories, and plunging into the world of fables.

The Belgian and Spanish schools exhibit a good deal of the eclecticism of the French school, with a more general tendency to elaborate finish.

England has made unheard of efforts for the Fine Arts competition of 1855, she has felt as a great nation ought to feel, that she had erred in 1851, when she excluded art from her exhibition, and at Paris the whole force of her artists presented themselves at the summons, in full array. The English school, for an English school now exists, has not yet attained the lofty range of the art, it does not produce large pictures, and makes but rare excursions into the field of history. The real merit of its artists is exhibited in the painting of animals and pictures of that class, originality of design and the elaborate finish of the details, everywhere distinguishing the English school among all the others.

In the specimens of sculpture exhibited, the chief success has been attained by France, Saxony, Italy and Belgium. France and England excelled in the class of architecture.

France carried off nearly all the prizes in the sections of engraving and lithography, England ranks next, and after her Prussia. In the section of water colours, all the prizes excepting one awarded to Switzerland, were carried off by England. France is unrivalled in the section of crayons, and excels in miniature painting.

It should not be forgotten that these letters contain only lists of names, and it is only sought, through their means to render the Canadian public familiar with the great names of European paintings ; in a small country devoid of reviews devoted to the subject, and in which are found but a few works which treat of subjects here touched upon, too much must not be expected, what I write I write for the masses.

II.

THE FRENCH SCHOOL.

The greatest French painters are Messrs. Ingres, Eugène Delacroix, Horace Vernet, Décamps, Meissonnier and Heim; there must be added to complete this glorious list of masters, Messrs. Paul Delaroche and Arry Sheffer, who did not exhibit; besides this Pleïad, there are other great names which shine with brilliant splendor.

Mr. Ingres, a pupil of David, belongs to the classic school, to that school which believes that uncultivated genius cannot be perfection, and that study and traditional knowledge are necessary. It has been said by Mr. Ingres, "I know nothing which has not been taught me." In these words may be summed up, his life and fifty years of labor, and if this great master has not been able to learn everything, he has of a certainty learnt and taught much, for he has instituted a school. Form, outline and contour have been his study, the ideal, the object of his aspirations, throughout the whole of his enormous labors he has never sacrificed to the exigencies of fashion or the requirements of novelty.

This patriarch of art contributed to the Exhibition 40 works, extending over all the periods of his long career. The most celebrated of these pictures are, in the historical class, *Œdipus divining the enigma; Venus Anadyomene; Joan of Arc at the Coronation of Charles* VII.*; the vow of Louis* XIII.; *the Virgin with the Host; St. Peter receiving the Keys of Paradise; the Martyrdom of Saint Symphorium; Homer deified and the Apotheosis of Napoleon;* among the miscellaneous works, *Henry* IV., *playing with his children; Pope Pious* VII., *celebrating Divine Worship; Tintoret and Aretin Françoise De Rimini*; in portrait painting, the portraits of Cherubini, Mr. Bertin, Senior, Count Molé, and the Countess de Haussouville.

The painter who, in the opinion of everybody, ranks immediately after Mr. Ingres, and who consequently takes the second place in this category, is Mr. Eugène Delacroix, a pupil of Guerin, of powerful genius, full of creative imagination, enthusiastic often, original always. Mr. Delacroix's talent is not one which is so generally acceptable as that of Mr. Ingres, it is by his magnificent coloring that Mr. Delacroix captivates the great number of his admirers.

Of the thirty-five pictures exhibited by Mr. Eugène Delacroix, the following may be instanced as evidencing the genius of the master:—*Hamlet*, (*scene with the grave diggers*)*; Tasso in prison; Dante and Virgil in*

the Infernal Regions ; the Massacre of Scio ; the Frenzy of Medea ; the 28th July, 1830 *; the Justice of Trajan ; Christ on the Cross ; Christ at the Tomb ; Women of Algiers.*

Mr. Horace Vernet the painter of battle pieces is distinguished for his inexhaustible fertility of imagination and his adherence to nature ; he is a pupil of Vincent. A man who has been able to attain a reputation similar to that enjoyed by Mr. Horace Vernet, must undoubtedly be the possessor of immense talents. He has exhibited 22 pictures, among which the one representing the taking of *La Smala* covers of itself 600 feet in superficies. Among the works exhibited by Mr. Vernet, those most worthy of remark are, *La Smala ; the Battle of Hanan ; the Battle of Montmirail ; Judith and Holophernes ; Rebecca at the Fountain ; Mazeppa ; Return from Lion-hunting ; Portrait of Brother Phillip, General of the Brothers of the Christian Doctrine*, and the portrait of *Marshal Vaillant.* It is worthy of remark that Mr. Vernet is the son, grand-son and great-grand-son of celebrated painters.

Mr. Décamps, pupil of Mr. Adel de Pujol, has contributed to the Exhibition no less than fifty-two works, in the different classes of subjects. Mr. Décamps' pictures are distinguished by their effect, and the harmony and unity of their conception, we feel that the painter has been inspired with a bright and clear idea, pleasant or terrible, severe or lively, but that he was so imbued with it to enable him to work it into a picture, and to compel all the accessories in the scene to give force to the principal object. When he painted his admirable Defeat of the Cimbri, he did not attach himself to one particular scene, no, his design was not to represent one general pitted against another, but the serried ranks of barbarism opposed to the well ordered forces of civilization, and the contest takes place in a narrow plain surrounded by precipitous rocks, beneath a tempestuous sky. A strong light is necessary to have the full effect of Mr. Décamp's pictures, and several of them had not this advantage in the Exhibition. His principal pieces were, the *Defeat of the Cimbri ; Joseph sold by his Brethren ; Eliezer and Rebecca ; Tiger and Elephant ; Interior of a Court yard ; the Monkeys ; the Gypsies ; Children with a Tortoise ; Dismissal of a Turkish School ; Fine designs, from the History of Sampson,* and one of *an Episode in the Defeat of the Cimbri.*

Mr. Hiem, a pupil of Vincent, exhibited seven pictures and sixteen portraits, he is an old painter, whose name was hardly ever mentioned except as the subject of a pleasantry, but connoisseurs recognized in him a master of the art, and the Exhibition has rendered him popular. There is great strength and breadth in his coloring, and his drawing is faultless. His talent exhibits that combination of great qualities, of which some are

wanting in the greatest masters. His principal pictures exhibited were, *a Massacre*, the subject taken from Josephus; *the Martyrdom of Saint Hypolite; St. Hyacinthe invoking the Virgin, restores a young man to life*, and a piece, the title of which in the catalogue was as follows: *King Charles X., distributing prizes to the artists at the close of the Exhibition of* 1824. "The moment represented is that when Cartelier is receiving from the King the order of St. Michael; Charles Vernet has just received it." We have praised the talent of the painter, there is something still more admirable in the goodness of heart and right feeling which courts that talent in honor of his competitors, we cannot say his rivals.

M. Meissonnier is a painter of general subjects. He brought nine pictures to the Exhibition, and was the sixth of the French school who obtained the Grand Medal of Honor. He is a pupil of M. Léon Cognet's. M. Meissonnier's distinguishing characteristic is the delicate finish of every detail in his pictures. This secures to him the admiration of all observers, and more substantial complements in the shape of piles of bank notes for his pictures. He is, however, honestly entitled to both. His pictures are nearly all small; he has lately increased the size, but large or small they are delicious. Those which proved the most attractive in the present Exhibition were: *A Quarrel; The Bravos; A Young Man at Work; The Game of Bowls in the days of Louis XV.; the Game of the Tonneau.*

Having devoted this brief notice to the six French artists to whom the Jury assigned the foremost rank, I am bound to make passing mention of the names and principal works of a few others of the great painters of the French school. A list of all would fill a volume, and I am limited to a few pages. Following the example of M. Heim, a few of the older painters sent their works to the Gallery of Fine Arts. M. About, a witty writer, gave them the collective title of "The Old Guard." They are Messrs. Abel de Pujol, a pupil of David's; Léon Cognet, and Henri Sheffer, both pupils of P. Guerin; Schnetz, a pupil of David's and Legros'; Vinchon, a pupil of Sérangeli's.

A few names we must mention of other great artists in historical painting: M. Couture, and his large picture of the *Roman Orgia*, known also as the *Romans in the Decline of the Empire;* M. Chenavard, with his fine Cartoons, embracing all History, a work designed for the decoration, formerly intended, of the Pantheon. M. Flandrin, and his *St. Clair restoring sight to the Blind;* M. Schmann, with his *Jeremiah in Bonds;* M. Muller, *The Summons of the last Victims of the Reign of Terror;* M. R. Fleury, and his *Benvenuto Cellini in his Workshop;* M. Benouville, *St. Francis blessing the City of Assise;* M. Chasseriau, *Arab Chiefs defying each other;* M. Gérôme, *The Age of Augustus, or the Birth of Jesus*

Christ, the subject taken from Bossuet's Universal History; M. Glaize, *The Pillory*, an allegorical painting, a historical representation of genius and merit slighted or persecuted; M. Yvon, *The Retreat from Russia*, or Marshal Ney covering the Retreat of the Grand Army.

Among the miscellaneous paintings we must notice among others, *A Ceremony in the Church of Delft*, by M. Isabey; *The Daughters of Eve*, by M. Roqueplan; *My Sister is not at Home*, (an idyll) by M. Hamon; *The Peasant's Dinner*, by M. Edouard Frère.

In landscape and other styles, how many remarkable pictures: *The Coast near Granville*, by Theodore Rousseau; *The Effects of the Morning*, by M. Corot; *A Path through the Wheat*, by M. Français; *Landscape with Animals*, by Jules Noël; *Morning*, by M. Achard; *The Fens of Picardy*, by M. Huet; *The Hay Field* (a scene in Auvergne) by M'lle Rosa Bonheur; *Oxen going to Plough*, by M. Troyon; *Animals at Rest*, by M. Brascassat; *The Flowers of the Tombs*, by M. Saint Jean. The names of Cabanel, Dauzats, Gudin, Hébert, Jalabert, Larivière, Maréchal, (*Crayons*,) Rouget, Constantin, Wintenhalter, and Madame Heberlin, (*Miniature*,) all excellent in their respective styles, must not be omitted.

SCULPTURE.

The three great French sculptors, the greatest at least of the present day, are already of old standing: Messrs. Rude, Dumont, and Duret. As I have before remarked, M. David d'Angers did not exhibit. Rude's *Child and Tortoise*, Dumont's *Leucothée*, and Duret's *Neapolitan Fisherman*, were therefore the principal works in the department of Sculpture. These three artists received each a grand medal of honor.

Next to these veterans of their art were: M. Guillaume, with his *Anacréon*, in marble, and *The Mower*, in bronze; M. Lequesne, with his *Dancing Fawn*, in bronze; M. Perraud and his *Adam after the Fall*, in marble; M. Bonassieux, *Meditation*, in marble; M. Marcellin, with the *Return of Spring;* M. Maillet and his *Agrippina* and *Caligula*, a group in marble; M. Raggi, with a group also in marble, *Metabus, King of the Volsci, and his Children;* M. Gatteaux, *Minerva after the Judgment of Paris*, in bronze; M. Pollet, *An Hour of Night*, in bronze. We must not omit the names of Foyatier, Jaley, Cabet, Debay, Moreau, Oudiné, Cavelier, Droz, Gumeny, Oliva, Etex, Lachesne de Caën, and Le Comte de Nieuerkaerke.

OTHER BRANCHES OF ART.

In Engraving, M. Henriquel Dupont obtained the grand medal of honor, and was the only engraver to whom this highest prize was awarded. Everybody has heard of that *chef d'œuvre* of engraving, the Hemycicle of Paul de la Roche. The next after this great master of his art are: Messrs. Calamatta, Forster, Martinet, Leroy, Pollet, Blanchard, Burdet, Caron, Damour, Desclaux, and the two François.

In medal and stone engraving the most celebrated names are those of Messrs. Bovy, Depaulis and Salmson.

The most eminent in Lithography are Messrs. Mouilleron, Leroux, Desmaisons, Laurens, Sirouy, Soulange and Teissier.

In Architecture, the grand medal of honor was awarded to M. Duban. His greatest work exhibited was composed of twelve drawings of the Castle of Blois (Loir et Cher.) Next after him are Messrs. Questel, Christie, Duc, Labrouste, Normand, Boeswilvad, Viollet, Leduc, Vaudoyer, Lesuel, Lassus, Baltard, Clerget, Pacard, Tetaz, Daly, Millet, Ruprick, Robert, Denuelle, Petit. In the engraving and lithography of architectural designs, Messrs. Bean, Gaucherel, Guillaumot, and Huguenet, are distinguished.

III.

GERMAN SCHOOL.

M. Pierre de Cornelius, of Prussia, received the honor, or rather the just tribute of the grand medal of honor. This master, the founder of a school, exhibited eight large pictures, his designs for the frescos of the Campo Santo at Berlin. The subjects are: 1. *The seven angels of the Revelations pouring out the vials of the wrath of God*; 2. *The four horsemen of the Revelations, Plague, Famine, War and Death*; 3. *Works of Christian Charity*; 4. *Satan cast into the bottomless pit, taken from the Revelations*; 5. *The New Jerusalem*; 6. *Work of Charity*; 7. *Beatitude "Blessed are they that hunger and thirst after righteousness"*; 8. *The common destiny of men.* This statement of the subjects which he has chosen denotes a powerful genius, conscious of its strength; neither has its possessor over-rated its powers, the conception, composition, and drawing of these cartoons is in the grand style of Michael Angelo.

Several of the most celebrated of the German painters kept aloof, the contributors following M. de Cornelius with greater or smaller intervals of merit, were Messrs. Guillaume de Kaulback, Magnus, Meryerheim, Schader, Richter, Rœting et Steffeck.

The principal pieces exhibited by M. de Kaulback were: ***The Tower of Babel; the Legend; History***, and ***Moses***, (the Divine law-giver pointing to the tables of the law, and trampling the idols under foot.) A beautiful female portrait by M. Richter was much admired, also a piece entitled, *A Wedding in Spring*, by the same artist, and, *the Workman's family* by M. Meryerheim.

In sculpture the grand medal of honor was given to M. Ernest Rietschell de Saxe, being the only instance in which a foreign artist carried off this distinction in that department. The best of Rietschell's works among the seven studies and models in plaster exhibited by him were, a group entitled *Pieta*, a bas-relief called the *Angel with Christ*, and another called *Love taming a Panther*.

M. Rauch, of Berlin exhibited, among other works, a plaster model, one eighth of the size of the original of his monument of Frederick the Great, at Berlin. The equestrian statue of the King was surrounded by a considerable number of other statues placed upon the first pedestal of the two which form the base of the principal figure. M. Kiss had in the exhibition a model in bronze, on a reduced scale, of his *Amazon and Panther*, and a colossal equestrian group in plaster representing *St. George and the Dragon.* M. Voigt, of Munich, medal engraver, exhibited to the admiring public four frames of impressions and models in wax.

The German artists who were successful in the other departments of art, were Messrs. Mandel and Keller, in engraving; Kellerhoven and Lindemann-Frommel, in lithography: Zanth and Hesse, in architecture.

IV.
BELGIAN SCHOOL.

In contravention of the opinions cited below, the Belgian School has been assigned the next place after that of Germany, because the latter affects the historical style, while the former ranges over the field of general art. "France is in no danger," le Comte de Ris declares, "of losing "her high position, but if one day, such danger were to arise, no doubt "Belgium would inherit the glorious distinction."

"The public," says M. About "will draw two conclusions, one, that "after our department, the Belgian stands pre-eminent ; the other, that "without a catalogue it is impossible to discern where the French School "ends, and the Belgian begins."

M. Henry Leys is the Belgian master who obtained the grand medal of honor. He is a painter of general subjects, and exhibited three pictures, the *Trentaines of Berthal de Haze*, an event of the sixteenth century; *the Walk beyond the Walls,* from Goëthe's Faust; and *New Year's Day in Flanders.*

With M. Leys, we have Messrs. Willems, Madou, Portaels, Robbe, Van Moer, Verlat, Joseph Stevens, Alfred Stevens, Dillens, Hamman, Robert, Thomas, Verboeckhoven, Degroux. It is in general art that the Belgian painters are most distinguished. The following pictures of this school were the most attractive: in history, *Christopher Columbus discovering America,* by M. Hamman; *Judas wandering during the night of Our Saviour's condemnation;* in general subjects, *The Dog market*, by M. Joseph Stevens; *Reading,* by M. Alfred Stevens; *The interior of a Silk Mercer's Shop,* by M. Florent Willems; *A Walk,* by M. Degroux.

We must not omit to remark that M. Gallait, the great historical painter of Belgium, sent no picture to the exhibition.

The Belgian sculptors who were most distinguished were Messrs. Guillaume and Jean Geefs, Fraikin, Van Hove, Chardon and Jacquet. Among the works exhibited were the marble *statue of King Leopold,* and the *Lion in Love*, by M. Guillaume Geefs; a statue of *the Virgin,* a plaster model by M. Fraikin, the *Negro Slave,* a group in plaster, by Van Hove.

V.

ENGLISH SCHOOL.

Sir Edwin E. Landseer, a painter of animals and general subjects, is the English artist to whom was awarded the grand medal of honor. Of nine pictures exhibited by this favorite English painter, the most attractive were the charming little landscape, called *the Sanctuary*, of which every one has seen the engraving; *Shoeing; Jack in Office; the tethered Ram.*

All Sir E. Landseer's works are remarkable for extreme delicacy of finish and skill in drawing.

Of the works of other English painters, the most admired were: *the Ascot meet*, by Mr. Grant; *Portrait of the late Professor Wilson*, by Sir Watson Gordon; *Uncle Toby and the Widow Wadman*, by Mr. Leslie; *Tilbury Fort*, by Mr. Stanfield; *a scene from the Bourgeois Gentilhomme*, by Mr. Frith; *Ophelia*, by Mr. Millais; *Ruins of the Temple of the Sun, at Baalbec*, by Mr. Roberts; *Football*, by Mr. Webster; *the Wolf slayer*, by Mr. Ansdell; *the last sigh of the Moor, Boabdil's farewell to Grenada*, by Mr. Hurlstone; *Portrait of Dr. Wardlam*, by Mr. Macnee; *Job and the Messenger*, by Mr. Poole.

Mr. Mulready, an artist of high repute in England, found no favor in the eyes of the Jury, but had partisans among the critics in art who admired his pictures of *the Wolf and the Lamb, the Evening Gun, the Bathers*, and *the Whistonian Controversy*. Amateurs also noticed Sir George Hayter's Picture of the *Trial of Lord William Russell* (1683.)

The English are the principal Painters in Water-Colors. Their best artists in this style are Messrs. Cattermole, Haghe, Tayler, Hunt, Nash, Topham, Wehnert, and Wells.

In engraving, the Jury awarded prizes of various degrees to Messrs. Robinson, Cousins, Doo, Gruner, Pye, Stocks Lumb, and Wilson.

Mr. Thonburn received a first-class medal for miniature painting; Mr. Lane honorable mention in lithograph; Messrs. Foley, Lawlor, MacDonald, Macdowell, Sharp, and Weekes, honorable mention in sculpture.

England carried off numerous and brilliant marks of distinction in the department of architecture. Sir Charles Barry received one of the grand medals of honor in this class; Messrs. Cockerell, Jones, and Donaldson, medals of the first class for drawing of existing monuments; Messrs. Hardwick, Scott, Falkener, and Hamilton, medals of the second class; Messrs. Burton, Fowler, Wyatt, Allom, Digby, Kendall, and Shaw, honorable mention.

VI.

OTHER SCHOOLS.

Among the works exhibited by other countries we noticed *the Sermon in a Chapel of Lapland,* by Mr. Hockert, of Sweden; *The Lake of the four Cantons,* by Mr. Calame, of Switzerland; *the Gipsy Camp*, by Mr. Knaus, of the Duchy of Nassau; *the interment of St. Cecilia in the Catacombs,* by Madrazo, of Spain; *a Country Funeral,* by Mr. Fidemand, of Norway.

In sculpture, *Abel expiring*, a statue in plaster by Mr. Dupré, of Florence; *Eve after the Fall,* in marble by M. Fraccarolli, of Venice; *Bust of the Archduke Charles of Austria,* in plaster, by Mr. Fenkorn, of Austria; *the Death of Abel,* in marble by Mr. Miglioretti, of Milan; *Ruth,* in marble, by Mr. Bonnardel, of Rome.

In architecture, a plan of a monument to commemorate the alliance of England, France, and Turkey, by Mr. Bilezikdji, of Turkey.

The other names of note are, in painting, Messrs. Gronland, of Denmark; Gude, of Norway; Muyden and Gsell, of Switzerland; Blaas and Steinle, of Austria; Ferri, of Sardinia; Mayer, of the Netherlands; May and Rossiter, of the United States. In sculpture, Messrs. Pierotti and Radnitski, of Austria; Marquis de la Torre, of Verona; Bissen, of Denmark, Vela, of Milan.

SECOND SERIES.

VISIT TO THE INDUSTRIAL EXHIBITION.

I.

GENERAL DATA.

"The nations of the earth had agreed to accept the international Jury of "1855," said a journalist of Paris, "as the court of supreme jurisdiction "which sat to revise the decisions of the Jury of original jurisdiction of "1851." Each country, therefore, attended the Paris Exhibition with the full strength of its industrial resources. That of London had ascertained the powers of each respectively; and that experience had, it was evident, been a guide to the National Committees, in the selection of what they had to exhibit.

The arena at Paris grew to dimensions much larger than the limits anticipated; and this was so much the case, that every body was taken by surprise. Nations remote from France continued their contributions, long after the final period appointed by the Imperial Commissioners charged with the management of this vast department; and it was not till some time after the opening of the Exhibition, that they were in possession of all the information necessary to carry out the business of arrangement.

Nothing seems better to shew the importance of the Exhibition of 1855, than a comparison between the figures which determine the relative magnitude of that and its predecessor of 1851.

The total area of the Crystal Palace of London, 1851, was in round numbers 800,000 square feet; that of the Palace of Industry and its Annexe at Paris, exclusive of the Palace used for the exhibition of Fine Arts, was 1,220,000 feet. The whole number of exhibitors in 1851 was 14,840, that of the exhibitors at Paris in 1855 was 20,839.

A comparative statement of the exhibitors of each several nation at the Exhibition of 1851 and 1855 respectively cannot fail to be highly interesting. Such a statement will furnish proof of the influence of such exhibitions, of the interest which they excite, and of the improvement which they produce.

A table of the Exhibitors of each Nation in 1851 and 1855.

	1851.	1855.
French Empire	1710	10691
Great Britain and Ireland	7381	2674
Prussia	872	1313
Austria	731	1296
Russia, China, and Persia	305	"
Belgium	506	686
Spain	286	568
Portugal	157	443
Sweden	117	417
Holland	113	411
Switzerland	263	408
Wurtemberg	109	207
Sardinia	95	198
Tuscany	99	197
Bavaria	999	172
Greece	36	131
United States	499	130
Norway	Sweden	121
Mexico	12	107
Saxony	190	96
Denmark	39	90
Hanse-Towns	134	89
Grand Duchy of Baden	Prussia	88
Grand Duchy of Hesse	80	74
States of the Church	52	71
Duchy of Nassau	13	59
Frankfort on the Maine	33	24
Luxemburg	6	23
Hanover	Prussia	18
Brunswick	"	16
Duchy of Anhalt, Dessau, and Coethen	"	15
Electorate of Hesse	"	14
New Granada	"	13
Grand Duchy of Oldenburg	Prussia	13
Duchy of Saxe Cobourg Gotha	"	11
Guatemala	"	7
Duchy of Saxe Cobourg	"	6
Hawaï	"	5
Brazil	"	10
Costa Rica	"	4
Duchy of Saxe Meinengen	"	3
Duchy of Saxe Altenbourg	"	2

A Table of the Exhibitors, &c.—(*Continued.*)

	1851.	1
Principality of Lippe	"	2
" of Schaumburg-Lippe	"	2
Dominican Republic	"	1
Principality of Reuss (eldest Branch)	"	1
Principality of Reuss (youngest ")	"	1
Grand Duchy of Saxe Weimar	"	1
Principality of Schwarzburg Rudolstadt	"	1
Turkish Empire, Egypt and Tunis	3	9
The three last countries shew so small a number of exhibitors only because their respective Governments transmitted the several collections.		
Total	14840	20839

The premiums distributed in London in 1851, were of four classes, designated as General Council Medals, Council Medals, Prize Medals, and Honorable Mentions; there were at Paris in 1855, divided into five classes, designated as Grand Medals of Honor, Med ls of Honor, First ClassMedals Second Class Medals, Honorable Mentions.

In London, in 1851, there were awarded 8 General Council Medals, and 160 Council Medals, distributed among the several countries as follows:

General Council Medals	Great Britain and Ireland	2
	France	2
	Spain	1
	Egypt	
	Tunis	.
	Turkey	1
Council Medals	Great Britain and Ireland	75
	France	53
	Prussia	9
	United States	5
	Austria	4
	Russia	3
	Bavaria	3
	Tuscany	2
	Switzerland	2
	Belgium	2
	States of the Church	1
	Holland	1

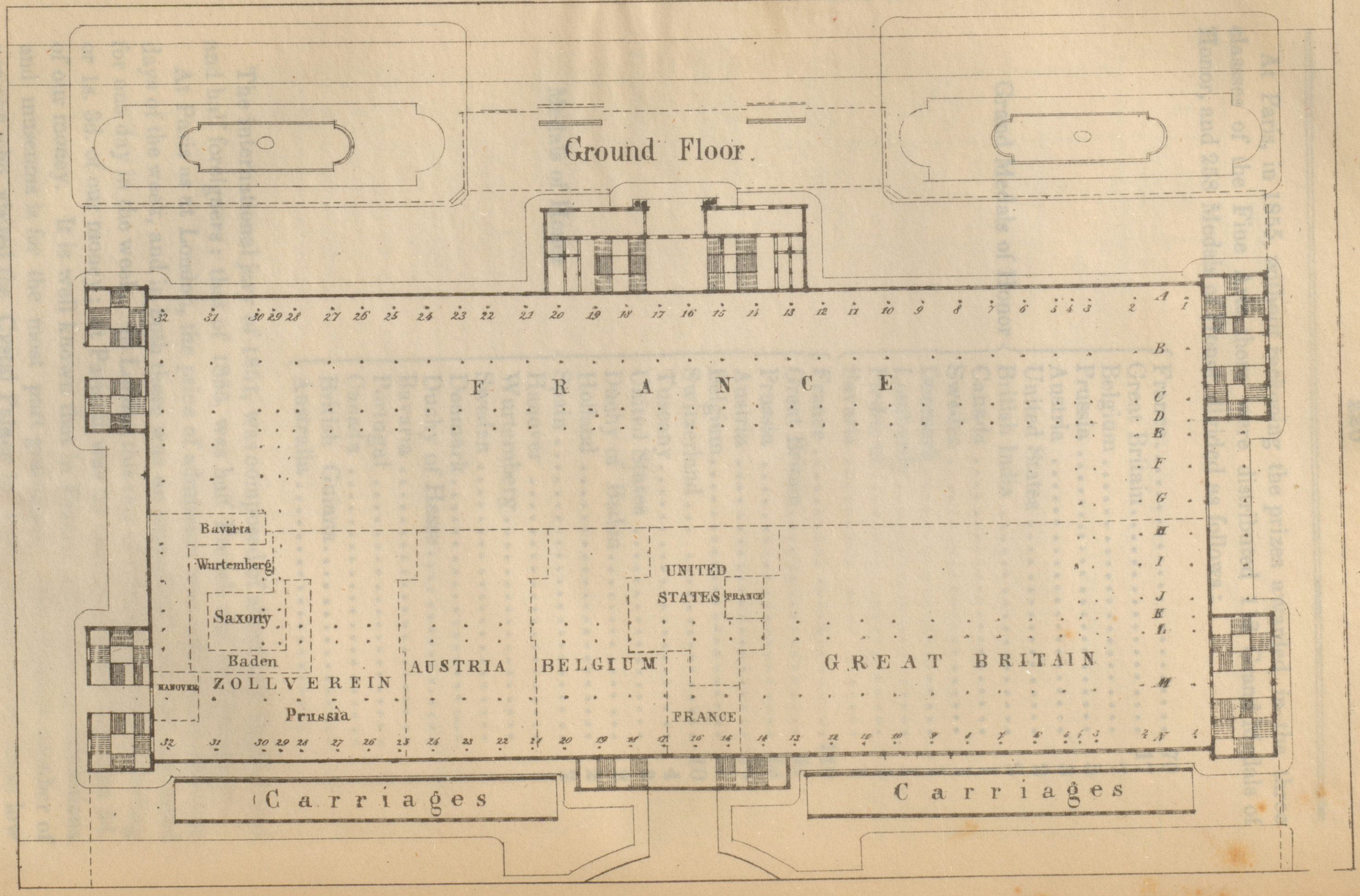
At Paris, in 1855, without reckoning the prizes awarded in the three classses of the Fine Arts, there were distributed 112 Grand Medals of Honor, and 258 Medals of Honor, divided as follows:

Grand Medals of Honor	France	70
	Great Britain	17
	Belgium	7
	Prussia	5
	Austria	3
	United States	2
	British India	2
	Canada	1
	Sweden	1
	Denmark	1
	Lombardy	1
	Piedmont	1
	Bavaria	1
Medals of Honor	France	149
	Great Britain	31
	Prussia	19
	Austria	16
	Belgium	10
	Switzerland	10
	Tuscany	4
	United States	3
	Duchy of Baden	2
	Holland	2
	Spain	2
	Hanover	1
	Wurtemberg	1
	Sweden	1
	Denmark	1
	Duchy of Hesse	1
	Bavaria	1
	Portugal	1
	Canada	1
	British Guiana	1
	Australia	1

The international jury of 1851, was composed of about half English and and half foreigners; that of 1855, was half French and half foreigners.

At Paris as at London, the price of admission was different on different days of the week, and in both there was an exceedingly low rate appointed for one day in the week. In London this rate of admission was 1s. sterling or 1s. 3d. of our money; at Paris, it was 20 centimes, rather less than 3d. of our money. It is well known that in France, admission to exhibitions and museums is for the most part gratuitous. The smallest number of persons who visited the Cystal Palace in 1851, on any one of these low

MAIN BUILDING.



priced days, was 34,000; the largest 109,000: The smallest number at Paris was 42,000, the largest 120,000.

Having given this general information and exhibited those statistics of both, the comparison of which is so interesting, we shall now proceed to review the labyrinth of those floors and those galleries, which the world had charged with the wondrous products of human genius.

II.

THE CENTRE OF THE NAVE.

The small plan of the Champs Elysées which accompanies this volume shews the relation and position of the different edifices of the Exhibition at Paris. Let us enter the Palace in its eastern face and cast a rapid glance over the mass of articles which occupy each distinct compartment of this vast receptacle of all nations.

Having entered the nave, we find on each side of the passage by which we approach, chimney pieces, and various architectural ornaments of marble of different kinds, and a few rich articles of bronze; those on the right being of French manufacture, the other nations occupying the opposite side.

The nave contains large articles, collected on this middle or neutral space, between the French compartments occupying the whole north part or right side of the edifice, and the foreign compartments occupying the other side.

The two first articles which we notice are: 1st. A looking-glass from St. Gobain, a specimen of French skill in glass-making. This plate is simply 17 feet by 10 feet. There is room in it to see oneself at full length. It is needless to say that the beauty of this article is on a par with its extraordinary size. 2nd. A crystal candelabra of enormous size, having eighteen gas jets; This article is of English manufacture, from the House of Osler, of London and Birmingham. Next in succession are a lantern of French manufacture, and two bronzed candelabra, one from the foundry of Tusey, the other from the English foundry of Messrs. Muel, Whal & Co. Two reflecting lanterns, one having a revolving light moving by a mechanism of clock-work, by Mr. Sautter of Paris; the other with a fixed light from the manufactory of Chance, Brothers & Co., of Birmingham. An equestrian figure the natural size, representing a knight armed *cap-a-pie* in polished steel,

Mr. Granger, of Paris, property purveyor to the Opera. An iron door made Mr. W. Bally, of London. An eagle, defending its prey, in bronze, copied from a beautiful composition of the French sculptor, M. Caïn, by Mr. Vittoz, a manufacturer of bronzes of Paris; the eagle-slayer, a bronze by Messrs. John Bell, of London. A superb carving in wood, called the Shrine of St. Hypolite, executed at Rouen, by Messrs. Ouelbery, cabinet-maker and Alphonse Jean, wood-carver, from the design of M. Desmarest, chief architect to the department of *Seine inférieure*. An article of furniture in oak, by Messrs. Holland and Son, of London. A model in joiners' work of the immense printing establishment of Napoléon Chaix, of Paris, the celebrated editor of the Railway Library, with figures, shewing the machinery at work. A telescope, 12 feet long and 9 inches in diameter, mounted parallactically to the latitude of Paris, 48° 50' and moveable by wheel-work, by M. Secretan, optician to H. I. M. the Emperor. Instruments used at the observatory at Greenwich, a meridian circle, and a transit instrument. A splendid pleasure boat, built at London, by Messrs. Searle & Fie, builders to H. M. the Queen. This beautiful boat is built of Canadian birds'-eye maple and mahogany. A marine trophy, a large collection of apparatus and models connected with the sea and river services of English manufacture, models of steamers, sailing vessels, anchors, chains, blocks and cordage: this trophy is surrounded by figures habited in diving dresses. A fine statue in bronze of St. Jean Baptiste, by M. Calla, a Parisian artist.

Mechanical compositors and distributors of type for printing. The progress to perfection which this French invention is daily making in France and Belgium, enable us to foresee a time when the composition and distribution of type will be effected with such rapidity, that the cost of books, and other printed matters, will be greatly diminished.

A Knight attacking a serpent with bow and arrow, cast in bronze, by M. Victor Thiébaut.

An altar-front in white marble, representing *in demi relief* busts of Christ and the Apostles, surrounded by vine-branches and large foliage, also in half relief. Another altar in marble (Gothic) surrounded by a glory. On the front of this altar is a symbolical representation of what inspired the answer of the Virgin: *Ex hoc beatam me dicent omnes generationes!* The Mother of our Saviour accompanied by St. Elizabeth, appears on a hill, towards which the eyes and the homage of all nations and generations of the earth are directed, represented by shepherds, magi, princes, and doctors of the law. This long train of people, pontiffs, and kings, closes with Pope Pius IX, proclaiming the dogma of the Immaculate Conception, and the sailors of the French fleet in the Baltic receiving from the Emperor the image of the Virgin. These two superb altars are the work of the Abbé Choyer d'Angers.

Another altar of veined marble in the Bysantine style. A vast chimney piece of the same material, embellished with the statue of a female, symbolical of the City of Paris, and with four medallions containing portraits of Tasse, Arioste, Dante, and Petrarcu. These two works are by M. Vossey of Paris.

A magnificent aviary, ornamented with small basins containing live fish, and with flowers, sculptured figures, and turtle doves, canaries, and other birds, living together in the utmost harmony. This aviary is by M. Tahan, of Paris.

A statue of Icarus falling, in bronze, of great beauty and grace, effects hard to be attained, in the inverted position of Icarus, the type of imprudent adventurers. This beautiful work was designed by the artistic hand of M. Hypolite Ferrat, and cast by M. Vittoz of Paris.

A Brazilian diamond of the weight of 225 carats, bearing the name of *Star of the South*, exhibited by M. Halphen.

A Gothic altar with statues of angels and a pointed arch, in French artificial stone.

Two bronze busts representing their Majesties the Emperor and Empress, by Messrs. Elkington, Mason & Co., of England.

A Gothic pulpit of wood, carved by M. Vereman, of Holland.

Queen Boadicea rousing the Britons, represented with two of her children, and holding a sword. This bronze work was cast by Messrs. Elkington, Mason & Co., of Birmingham, and was copied from the original in marble by the English sculptor, John Thomas.

A statue of Lesbia weeping for the death of her bird, in bronze, by M. Labroüe, of Paris.

An altar of white marble with a mosaic pavement, in Bysantine work, by M. Jabonim, of Bordeaux.

The nave is here divided by the transept, having at the point of intersection a gushing fountain of fusible lava, decorated with flowers of the natural colours, in bronze, by the decorators of Paris.

We continue our walk through the central nave towards the western extremity of the Palace.

An altar of the middle ages, in Goldsmith's work, by Messrs. Poussielgue and Rusand.

A fountain in porcelain, by Messrs. Creil and Montereau.

A Gothic chair of carved wood, by Messrs. Couypers and Stolzemberg, of the Netherlands.

An altar in goldsmith's work, by M. Bochelet, of Paris.

An immense plate looking-glass, by Floreffe, of Belgium.

A fountain surrounded by a basket of flowers in freestone, by M. Melnetzhy, of Belgium.

An altar-piece of oak, in the Gothic style, by Messrs. Goyers Brothers of Louvain, Belgium.

A Madonna of carved oak in a niche of the same with statues of angels, columns, and incense vases. The angels hold suspended over the head of the Virgin a crown of marble of dazzling whiteness.

Four basins, by M. Giovanni Isola, Professor at the Royal Academy of Massa, Italy.

Several articles of smaller importance, duplicates of which are in the galleries, among them are telescopes and a clock from Austria.

The two horses of Marley in galvanized copper after Coustou.

Model of the great French ocean steamer, *Danube*. This admirable model, which cost £3000, and represents one-fifteenth the size of the original, the screw and sailing vessel *Danube*, shews even the movements of the steam-engine, the minute parts of its structure, the sails, riggings, furniture and fittings of all kinds, of a ship exemplifying the mixed principles of the screw and sails, as prevalent in the present age. The *Danube* is the property of the company of the *Messageries Imperiales* for the Mediterranean and Black Seas. It is 240 feet long, 33 feet beam, 20 feet depth of hold, and draws 14 feet water. It has three masts, a screw-engine of 370 horse power, goes 13 knots per hour, and carries 600 tons of merchandize, besides passengers, &c. This model was made in the workshops of La Ciotat, near Marseilles, according to the plans of M. Dupuy de Lôme, engineer, and under the eye of M. Delecour, Engineer. This is the most beautiful of all the numerous and beautiful models in the Exhibition.

The large lantern of M. Augustin Fresnel, the inventor of the lenticular reflectors. This admirable invention is now too well known to require long description.

Two players at bowls, bronzes after the antique, in the Museum at Naples, by M. Gros Marly, of Paris.

A bronze in the style of Patin, by Messrs. Eck & Durand, of Paris: This group represents a combat between a horse and a lion.

Vases of Berlin porcelain, to imitate that of Sèvres.

Four bronze stags of the natural size, from Berlin; two of the ordinary dusk colour, the two others of a light buff colour.

A hunting dog in bronze.

A flower-stand of pyramidal form, in the Moorish style, with pillars, vases and arabesques, of colored bronze, by Mr. Charles Diébitch, of Berlin.

This closes the list of the articles in the parallelogram forming the centre of the nave.

III.

LATERAL PORTIONS OF THE NAVE.

Turning to the right in the foreign department, we return from the west to the eastern extremity.

The first compartment contains contributions from Saxony. These are tapestries, and small pieces of embroidered needle-work, in imitation of engravings on copper plate, exhibited by Mr. Hiétel; paintings on porcelain in the shape of fancy boxes, medallions, snuff-boxes, and ornamented articles for the toilet by Mr. Bucker; articles of plated straw by Mr. Reichel; and lace mixed with plaited straw, by Mr. C. G. Rein and M. Brennewit.

The second compartment contains articles of pottery; small fountains, vases, statuettes, and table-furniture of terra cotta, alabaster, stone, and porcelain. These several substances are used either separately or combined, either in their natural state, or ornamented with paintings. The exhibitors are Messrs. Villeroy and Bock of Prussia.

The third and fourth compartments also contain Prussian articles, the former, porcelain from the royal manufactory at Berlin, and a mirror from that of the glass Company of Aix-la-Chapelle; the latter, crystal and porcelain lustres by M. C. Spinn and likewise articles of porcelain from the royal manufactory at Berlin, among which is a pretty candelabrum with a figure of Cupid pointing an arrow.

The next four compartments belong to Austria, and contain porcelain and enamels of Messrs Guntler, Grohmann and Neffer, a gothic clock case, and various fancy articles of wood carved in the most admirable manner, by Messrs. Stanmer and Breul; a bas-relief representing a religious subject from the Imperial Printing Office at Vienna; and a collection of vases of stained and cut glass. These vases magnificently decorated with scenes of history and the chase, are by Mr. Hegenbarth. These are the contents of the first compartment of Austria, the others contain a splendid collection of vases, ornamental and fancy articles in plain, coloured, and enameled glass from the manufactory of Messrs. Kralick and Tascheck; another still finer collection of glass and porcelain from the manufactory of His Excellency, the Comte de Harrach; and finally another collection of porcelain in imitation of Sevres, by Messrs. Fischer and Portheim.

The three next compartments contain articles from Belgium; one,

magnificent cloths of various colours from the factory of M. Biolley and Son, at Verviers; another, a collection of sacerdotal vestments of unparalleled richness and beauty. This is one of the finest show-cases in the exhibition. The exhibitor, Mr. Van Halle of Brussels has inscribed over it the words, " God alone is great, glory to Him alone !" The last of these three compartments is that which contains specimens of fire-arms. The guns, rifles, and pistols which enrich this case, several of them highly wrought, are from the manufactories of Messrs. Victor Collette, Thonet, L'Honneux Brothers, Malherbe, Dandoy, Reick and Son, Mags, Novent and Co., Schépers of Belgium, and particularly from that of the celebrated Lepage of Liege. Among them is a rifled pistol of admirable workmanship, firing twenty-four times without reloading.

We have now arrived at the cross alley, which is here decorated with two small parterres of natural flowers and marble statues. Here is the American section: as the most honorable place had been assigned to France at New York, the compliment was reciprocated to the United States at Paris, and, as if to give point to the proverb " a good deed is never thrown away," it happening that the United States could not fill their pavilion, the Commissioners of that country gave up a part of it to France, the products of which occupy much more than half the building.

Near the parterres, which we have just noticed, is a division containing articles of a rather novel manufactures that of hardened caoutchouc. This material is now fashioned into combs, brush handles, handles of tools, optical instruments, artificial whalebone, furniture, ornaments, boxes, stocks of guns, knife-sheaths, scabbards, pouches and innumerable other articles.

This composition is the invention of Mr. Goodyear, an American of New York. Mr. Charles Morey, another American, purchased the patent right in France from the inventor, and it is at present in that country that this manufacture has been carried on to the greatest extent. It labors, however, under two great disadvantages, one is the smell of the caoutchouc which cannot as yet be got rid of, the other is the absence of the test of time to ascertain its durability. The articles exhibited in the Palace of Industry are from the manufactory of the General Company of hardened caoutchouc, and from those of Messrs. Rousseau, Laferge and Co., of the Seine et Oise; of Louis Panris & Co., of Lille; of Mirabel Chambaud & Co., of St. Denis; of Lafertrille & Co., of Paris; Fauvelle Dellebarre, of Paris, and of Poulot Prudent, of Paris.

Still passing along the alley, we find two compartments in the American pavilion, one containing Colt's Revolvers, and highly finished clocks and

watches from the house of Leroy and Son of Paris, the other articles exclusively French Parisian jewellery by Mr. Maurice Mayer.

The eight following compartments, reaching to the extremity of the alley, belong to the United Kingdom, and contain painted and gilt articles of iron ware from the manufactory of Perry, Shoolbred, Loveridge & Co., woollen carpets, tissues and stuffs of silk, wool, and cotton from Bedford and Halifax; articles of furniture of papier-maché by Jennens and Betteridge, and lamps and ornaments for doors from Timothy Smith and Son of Birmingham; cotton prints and muslins of all descriptions of pattern and beauty of fabric by Messrs. Dalgleish Falconer & Co., of Glasgow; articles of earthenware and porcelain from the Staffordshire Potteries; china-ware from Messrs. Rose and Daniel of London; tissues of silk from Manchester; beautiful mantel-pieces of polished iron and bronze, in the most correct taste, by Hoole of Sheffield; and last, a magnificent case containing specimens of linen, cloth and lace of Irish manufacture, sent by the houses of Holden & Co., and Robert Lindsay & Co., of Belfast.

Crossing the eastern end of the Nave, and passing along the northern side which belongs altogether to France, we examine the compartments and cases occupying the right of the alley immediately adjoining the centre of the building.

The first compartment contains a church organ of small size and designs for larger ones, contributed by Mr. Caillé of Paris; likewise a melodeon by Messrs. Alexander & Son.

The next division contains the magnificent harps and pianos of the celebrated Erard, and the no less beautiful ones of Messrs. Pape, Blanchet, Playel & Co., flutes and fifes by Mr. Tulon, violins, violincelloes, &c., by Messrs. Bernard and Vuillaume; and instruments of military music by Messrs. Besson & Gautrot.

We next arrive at the fine exhibition of typography, types, engravings and specimens of printing, by Mr. Henri Plon, then at the compartment occupied by Messrs. Tuber & Brothers, containing decorative articles of statues and bas-reliefs in carton-pierre, a bust of the Emperor, and particularly a frame remarkable for its fresh beauty, its dazzling whiteness and its colossal demensions. This frame forms a chimney-piece embellished with a running border of artificial flowers and surmounted with a plate glass, such as can be made only at Paris.

The minister of War has deposited in this place a trophy of the arms used by the Infantry and field-artillery, cannon, brass field-mortars, muskets, rifles, pistols, sabres, bayonets, lances, cuirasses, helmets, &c. The most remarkable are the Minie Rifle, with the half bent sabre of the *Chasseurs de Vincennes,* and the lance-musket of the Cent-gardes. This musket is loaded at the breech and is very light. Instead of the

bayonet, a sword or rapier of great length is fitted to it, and the weapon thus formed by the union of the musket with the sword, is more than seven feet long, and may be used as a lance.

The next case contains beautiful Cashmere shawls contributed by Mr. Bietry; optical instruments by Mr. Cam; superb ivory articles by Mr. Poisson, fancy articles by Mr. Mayer, and perfumery by Messrs. Henry and Demerson.

After them we have biscuit ware in every shape by Mr. Gille, toilet articles by Mr. Sormani, charming fans by Mr. Duvelleroy, and porcelain vases, artificial flowers, and various articles for the toilet, by several exhibitors; among them stained and gilt papers by Mr. Angrand, and fancy buttons by Messrs. Trelon, Welden and Well.

One compartment is devoted to ornamental articles for the side board by Jeanselme & Son, among them a game-keeper carved in wood, and a gilt side-board, in the oriental style, adopted and perfected by Parisian art.

The compartment which now meets our eyes contains bronzes by Mr. Barbedienne, and among the vast number exhibited we are attracted by a copy, half the size of the original, of the door of the celebrated Baptistery at Florence made by Lorenzi Giberti; a group reduced to one third size of the Laocoon; a copy half size of the Venus of Milo; the Moses of Michael Angelo, one fourth size, and two splendid candelabra of bronze gilt.

The next space is occupied by Mr. Tahan with furniture from his celebrated factory. Here among other articles may be seen a superb side-board of rose-wood with gilded arabesque.

Cut glass of every description from the renowned manufactories of Clichy, St. Louis and Baccarat, adorn the next compartment. The last mentioned of these manufactories have placed there two immense candelabra entirely composed of glass, their total height being 17 feet.

French laces are well known, we therefore stop for awhile before the pavilion of Mr. Auguste Lefébure, who exhibits black point lace from Bayeux, Brussels, Venetian, Valencienne and Alençon point: we admire not more than others perhaps, some artificial flowers of white lace, and a toilet table ornamented with these flowers and draped with the different varieties of point lace.

We now come to the central avenue. Opposite to the great fountain in the middle of the nave, a small parterre has been arranged on each side ornamented with marble statues. In this vicinity are pavilions containing inimitable specimens of Parisian plate and jewellery, silver salvers, services, ewers, baskets and candelabra, by Mr. Fray; a magnificent tea service, dishes with covers, and a model in bronze of a superb vase executed in *repoussé* silver, the subject of the *bas-relief* which ornaments the cup is a tournament of the middle ages, exhibited

by Mr. Durand. Next to these articles, the following gentlemen exhibit: Mr. Manuel, candelabra of silver gilt, a Gothic poniard, the handle of which represents St. Michael overthrowing Satan, and a shield representing the last combat of the Amazons, from the celebrated design *Sic Victoria Victis*; Messrs. Rudolphi and Wiese exhibit superb collections of every variety of jewellery in which, all descriptions of precious materials are fashioned in a thousand different ways; Mr. Morel-Ladeuil, chaser, contributes a model in wax of a vase to be executed in *repoussé* for the sum of £950, the subject is *The dance of the Fairies*, taken from the poems of Germany; Mr. Wechte, a magnificent vase representing the combat of the Centaurs and the Lapithae, and Mr. Lebrun, a magnificent collection of silver vases of various designs.

The next compartment contains the incomparable mousselines-de-laines and superb cashmeres, exhibited by Messrs. Bernoville Brothers, Larsonnier Brothers, and Chenest.

Porcelain ware contributed by a number of exhibitors, occupies the next compartment, we may notice particularly, a bust of the Empress, sculptured by Mr. Barre, and executed in porcelain by Mr. Gille, Jr.; and two vases of biscuit-ware, representing the festivals of Bacchus, exhibited by Messrs. Jouhanneaud and Dubois.

A magnificent compartment is that containing the court mantle of silk and gold and the cashmeres exhibited by Mr. Gagelin, the fresh looking feathers and the head dresses by Madame Melanie Brun, and the jewellery by Messrs. Bruneau and Company, Bapst and Charles Duron.

After these come magnificent candelabra in bronze, plain, gilded and coloured, exhibited by Mr. Denière; among the groups which compose the the pedestals of these candelabra are some which contain very exquisite statuettes, a large candelabrum with a hunting design, representing a tree in coloured bronze resting on the base of a column ornamented with boars' heads surrounded with oak leaves. At the foot of the tree is a dog in bronze; a gun and hunting accoutrements are supported by the trunk; and hares and partridges are hung to the branches which support the candles.

The next compartment contains lenticular reflectors for light houses by Lepaute; clocks and chronometers, by Mr. Wagner, and optical instruments by Mr. Dubosq-Soleil.

Among the superb cashmeres exhibited by Mr. Hebért, which occupy the next pavilion, we notice a shawl, the principal design in which represents the bust of the Emperor, surrounded by allegorical figures.

Here the minister of Marine has erected a trophy of the weapons employed in the French Navy. Cannons throwing oval balls of 200 lbs. in

weight; grappling irons, axes, cutlasses and boarding pikes; enormous muskets for the marines, pistols, sabres, bayonets, in fact all the instruments of destruction which Mr. Cobden would like to see at the bottom of the ocean, doubtless to give the unnecessary trouble of inventing them over again.

Let us stop to admire the beautiful jewellery by Mr. Froment Meurice, and particularly that magnificent Church ornament of silver, with small pictures on enamel, the pedestal is ornamented with small silver statues of the four Evangelists; the arabesques, which form the outer frame, contain three pictures, the middle one represents the crucifixion, that to the left Jesus in the Garden of Gethsemane, and that on the right the *Ecce Homo.* The same compartment also contains artificial flowers by Miss Pitrat.

The next stall contains an immense variety of zinc wares, pipes, conduits, sheets for roofing, vases, implements, garden statues, in fact no end of zinc contrivances exhibited by the Nouvelle Montaigne Foundry.

The factory of St. Jacques in the department of Allier, occupies the last compartment of the avenue which we have gone through. It contains a model of that vast establishment and models of wagons, locomotives, railway carriages, in fact all the contrivances employed about railways, to the manufacture of which this factory is dedicated.

IV.

CIRCUIT OF THE NAVE.

We cross the nave from the north to the south side, to visit the compartments located on each side that portion situated between the two side avenues. In order the better to understand the movements we are making, it must be borne in mind that we are traversing the Palace from the centre towards the perephery, following the avenues by a deviating course, traversing first those which are the nearest to the middle of the nave, afterwards those which are more remote, and proceeding thus until we reach the avenue which is nearest to the wall.

Passing from the first French avenue which we visited, to the foreign side of the Palace, the first objects which present themselves to view, belong to the exhibition of Saxony; they consist of cloths of various kinds, exhibited by Messrs. Lohse and Robert Albrecht; specimens of book binding, typography and galvanoplasty, some of which are very

beautiful. These are contributed by Mr. Brockans, and the house of Gïesecke and Devrient.

Next to these contributions from Saxony, is placed the exhibition of articles from the Grand Duchy of Baden. Metallic fabrics of great beauty made of copper wire, contributed by Mr. Kehl; among these metallic cloths is one destined for use in paper making, which presents a continuous surface revolving on a cylinder, this cloth beautifully woven is 30 feet long by 7 feet wide. Next come from the same country, printed fabrics of cotton and thread contributed by Mr. Gabriel Hérosé; fine specimens of different woollen cloths, by Messrs. Rœcklin and Son; splendid velvets of all imaginable colors, from the Badoise Society of Ettlinger.

We next pass to the large compartment belonging to Prussia. Entering the court we see to the right and left various specimens of china work, from the Royal Factory of Berlin, and also specimens of the same articles, by Widow Mattschas, among which a very beautiful statue in terra cotta, half life size, representing *Hope*, is worthy of remark.

A great part of the Prussian compartment is occupied by a display of instruments of warfare, more particularly sabres and swords; helmets and cuirasses of very beautiful workmanship may be seen, and a magnificent cannon of cast steel; these objects come from the following manufactories, namely: Messrs. Lunschloss, Schmolz, Hoppe, Harlkopf, Holler, Schilling, Engel, Morh, Speyer and Krupp.

The other numerous objects contained in this magnificent compartment comprise jewellery of various kinds, particularly some beautiful little hunt-scenes, painted in miniature on ivory, by M. Carl Schulz; a magnificent Christ in bronze, of about three-fourths life size, at the foot of the cross is a statue of the Virgin embracing the feet of Jesus. This beautiful object is contributed by the Count d'Enisiédal; a splendid Gothic mausoleum of cast iron, from the foundries of Count de Stolberg Wernigerode; the same nobleman furnished for exhibition the following articles, also of cast iron: a superb cross of filagree work, in the Gothic style; lattices of unparallelled lightness and elegance; iron lace covers and clasps for books; filagree fans as delicate and light as if made of more flexible materials. (1) Count Stolberg also exhibits crucifixes and other articles for religious purposes of fine white marble. Mr. Fischer's bronzes comprise a very pretty group, half life size, the subject of which is a fawn attacked by an eagle. Mr. Stobwasser exhibits paintings upon fancy articles composed of sheet iron, which display much freshness and taste.

(1) It is well known that Prussian iron presents in these articles a velvetty surface, and a warmth of color which has never been imparted to the iron of any other country, and which is due as much to the quality of the metal as to the manufacturing processes employed.

An incredible number and variety of articles of every kind, articles for religious purposes, toilet articles, jewels, amulets, necklaces, bracelets, &c., &c., decorated with amber and coral, are contributed by exhibitors whose names are as follow: Messrs. Hoffman, Winterfield, Nièse, and Tessler. The Prussian gold and silversmiths are fully represented; among the articles contributed by Messrs. Rentropp and Kime, we may notice a Gothic calvary in silver, about ten feet in height, gold and silver vases, and a superb cover for a Roman Missal in silver, by M. Kune of Altena; a fountain of bronze and silver, a gothic cross with groups in *bas relief* representing subjects from the apocalypse, and an equestrian group, representing an Amazon defending herself from a tiger, by Wagner; vases by Volgold; magnificent salvers by Loventhol & Co.; a salver in the form of a shield, representing in low relief a combat of the Amazons, by Loventhol. We find a magnificent column of Prussian casting from the foundries above mentioned; the column is surmounted by an eagle holding a thunderbolt in his talons, the middle of the Gothic shaft of octagon figure presents eight statuettes of beautiful workmanship, representing the arts and sciences. Mr. Haag has exhibited specimens of colors applied to enamels Mr. Lauchammer among other very beautiful articles in bronze exhibits a fire place of burnished casting, ornamented with decorations in bronze and polished in a severe yet agreeable style. Volgold and son have contributed a large *bas relief* representing the marriage of a Prussian Princess; a specimen of the galvano plastic process in fine silver, more interesting as a process than as a work of art. To conclude this brief description of the principal articles in this compartment we may remark the variety of jewellery and toys exhibited by Friedeberg and Friedmann.

The two large compartments adjoining that we have just visited are occupied by Austria. The first object which presents itself to the eyes of the visitor among the Austrian productions, is, the exhibition *of the Imperial Printing Office at Vienna*, one of the most magnificent typographic establishments in the whole world. There are constantly employed in it more than 1000 hands, and there are prosecuted to the utmost degree of perfection all the branches of the arts connected with typography. The magnificent collection exhibited consists of specimens of the following processes: a secretary table containing all the illustrations of polygraphy, to wit: four volumes in folio, containing more than three thousand different specimens of the characters employed in ancient and modern writing, and of the types employed in printing the different languages by their respective nations, copies of antique engravings, including those of Albert Dürer, illustrations and engravings by the processes, known under the technical names of xylography, chimitype on copper or steel, lithography chromolithography, chimigraphy, the galvano plastic process, stylography,

galvanography, hyalography, photography, microtype, and printing from nature.

This latter process, recently adopted in the Imperial Printing Office of Austria, merits special mention on account of the beauty of the impression it produces and the importance of the applications that may be made of it in the advancement of the natural science. It consists in producing an impression in relief, by means of objects themselves, having all the truthfulness of nature, and exhibiting all their minutest details, such as the leaves of a tree, flowers, plants, skins of animals, insects, and different kinds of woven fabrics; in order to obtain these *fac similes* the object is placed upon a solid plate of steel, and covered with a sheet of lead evenly rolled, the whole is then placed in a rolling press by means of which the impression of the object is produced in the malleable substance of the lead, this figure is retaken from the lead upon copper, by means of the galvano plastic process, but inasmuch as it is reproduced in relief, a second galvano plastic operation is necsssary to obtain upon copper a hollow impression, which enables the figure to be transferred to paper in demi-relief. The Imperial Printing Office of Austria exhibits among a number of illustrations thus obtained, a print from nature of a bat of large size, the skin of the animal was first emptied and then submitted to the effects of the rolling press; any imitation affected by hand, does not in any degree approach the beauty, and more especially the fidelity of these impressions from nature.

The exhibition by the Imperial Printing Office also includes engraving by means of the punch, type produced from 80,000 different matrices, stereotyped plates, books in different characters, magnificent book covers with gold and silver clasps, engraving in all styles, articles of electro-plate, and among others a superb collection of illustrations in relief, of anatomy and natural history, for the use of the blind.

The Austrian compartments which we are now inspecting also contains numerous other articles, utensils, and covers, of German silver, polished, plated and gilded, from the manufactory at Berndorf; an astonishing exhibition as regards the number and beauty of the specimens of Bohemian garnets, contributed by the following exhibitors: Messrs. Herman, Podiebrad, Goldschmidt, and Count Schoenborn, gold chains of most perfect beauty and purity by Bolzani & Co.; vases of gold and silver, among which may be noticed a cup having designs in relief on the subject of horse racing, the cup is of gold and the objects in relief of burnished silver, these articles are contributed by M. Radzersdor of Vienna; a map in relief of a mountainous district in Upper Austria, by M. Pauliny; gold and silver snuff boxes, by Schiell; two superb geographical maps, with mountains in relief, one of Austria the other of Europe, sent by the Imperial Institute

of Vienna; jewellery by Messrs. Pichler and Rocco Brothers; a collection of precious stones, polished, by Mr. Anton Pozelt of Bohemia; a magnificent collection of jewellery, comprising coronets, bracelets, bouquets of garnets, rings, necklaces, pins, and more particularly a massive cross of silver, in *repoussé* with gilded niches, in the Gothic style, containing statuettes of the Madonna and Child, Angels and Saints; this magnificent article was made by M. Jérôme Grohmann of Prague; wooden and copper musical instruments by Zeigler and Sons, and Miller and Son, of Vienna; strings of all kinds for musical instruments, by Louis Vanturini of Lombardy; a piano in a case of curled maple wood, by Mr. Peters.

So much for the contents of the first of the two Austrian compartments: the second contains articles of quite another description—linen and cotton fabrics, white, colored and printed, sent by M. Forster, of Bohemia, and M. Larger, of Moravia; cotton fabrics, by Mr. Dormitz; specimens of dyestuffs, especially Adrianople red, by Reckle & Brothers, from Upper Carenthia and Feld Kerch, Wellinger, Seykora of Bohemia; beautiful specimens of cotton thread by the heirs Dierzer and Mr. Heimsch; and fabrics from Trunau, Baumwoll, Lower of Austria, and from Constance in Lombardy; fustians by Mr. Spetzer, of Moravia; woollen, silk, linen and cotton fabrics, from the factory of M. Muller; a numerous collection of colored cotton fabrics, by Mr. Francois Lertenberger; white cottons of enormous width, from the factory of M. Sobotka at Prague; beautiful calicoes, glazed cottons and muslins, by Messrs. Neubert, Heilmann, and Redelhammer.

Next to these in the same compartment we find articles of ceramic and glass manufacture, such as tissues of glass, spun and colored by M. Tammasi, of Venice, including baskets, artificial flowers, lace, certainly for the most part more curious than beautiful in appearance, enamels, artificial pearls, *charlottes* and *brocailles* of the famous Venetian glass so long celebrated, glasses in sheets and panes, white and colored, by M. Marietti, also of Venice; aventurine and mosaic imitation rock work in glass, some of which are very beautiful, by Mr. Picaglia; a magnificent collection of crystal and cut glass, by M. Jauke & Brothers, which comprises crystal vases of different shades, ornamented with designs displaying admirable skill. Stone porcelain, terracotta and crystal, the materials employed in the fabrication of various articles and domestic utensils are sent in great numbers by M. Richard, the Imperial Factory of Lombardy, the factory at Prague, and by Count de Hum. In the midst of this collection we observed table services of gilded porcelain, upon which the gold has been laid so perfectly that we are almost induced at first sight to enquire why those articles of gold plate have been placed in the midst of the stone ware and porcelain;

the reason is, that in the very form of these table vases, gold plate has been imitated so closely that you might fancy you were looking at articles of gold in *repoussé* work.

The next compartment to those of Austria, which we have just visited, belongs to the Belgian exhibition; it contains: A collection of black cloths, by M. Simonis, of Verviers; cloths of all colors, among which are red, yellow and superb green cloths, from the factories of Messrs. Bleyfuez & Son, of Dison; an immense collection of woollen fabrics and fine cloths, by Charles Weber, of Verviers; ordnance and muskets exhibited by the Government of Belgium; lastly an enormous collection of weapons of warfare and for the chase, the specimens of which are contributed by the following manufacturers, chiefly from Liège, to wit: Messrs. Lepage, Lemille, Bernimolin, Falisse and Trapman, Jausin, Lardinois, and Landers. This collection is composed of arms of all kinds—rifles, muskets, pistols, sabres, hunting knives, bayonets, some of which are most profusely ornamented, while the simplicity of others is quite remarkable. There are rifles from £2 10s., and others which cost £150. The rifles and muskets used by all the different armies of Europe are there represented.

We next enter the United States' Department, in which we see—a collection of wooden models of vessels, printed works and engravings relating to the natural history of the United States, and some fine hydrographical charts, the work of Lieutenant Maury, of the American Navy. The lines on these charts indicate the course of the winds and surface currents of the different oceans, others shew the latitudes in which whales are found. All these articles were given to the French Government by the Federal Government a few years ago; a collection of engravings, especially as applied to the engraving of bank notes; two collections of daguerreotype portraits, one by Mr. Meade, of New York; pianos and violins; a fine collection of specimens of native copper, exhibited by the *Societé Française du Lac Superiéur;* a few small specimens of steel from South Carolina, contributed by the Swedish Steel Company; a fine side-board of carved wood, from the works of Messrs. Ringuet, Leprince, Marcotte & Company, of New York; specimens of dentistry, by Messrs. Fowler, Préterre and Kingsley, New York; a magnificent collection of Californian gold in its different natural conditions; chronometers, scales and standards of American weights and measures, sent by the comptroller's office; scales used in commerce, from the scale company of Vergennes, State of Vermont; medals relating to the history of the United States, from the mint at Philadelphia; two mantel pieces, in colored marble, from Massachusetts, without ornament,

sent by Mr. Tucker; a model of a large river steamboat; a tanned alligator's skin and boots made of that leather; this is a very singular and beautiful production; the surface is covered with quadrilateral marks similar to the hammering of the workman, and varying in size according to the different parts of the animal.

The next compartment, which is within the space allotted to the United States, is occupied by French industry; here may be seen magnificent paper-hangings exhibited by M. Genoux, of Paris; a piano, the case of which is of carved ebony, from the manufactory of Mr. Harz; articles of decorative furniture, in different styles, by Messrs. Drapier, Desgranges, Lemercier, Ribailler and Mazaroz; amongst others, a side-board by the latter, with fishing and hunting subjects, purchased by the Emperor; porcelains and bronzes, by M. Boutigny; and lastly, furniture of Thuya and other Algerine woods, exhibited by Mr. Fourdinois, among which we may remark a series of decorations for a room ornamented with statues representing hunting subjects, and a *bas-relief* representing a mythological winter scene.

The three compartments next to those I have just referred to, belong to the English exhibiton, and contain; an extensive collection of bronzes and plate, by Elkington, Mason & Co., of London and Birmingham; the objects most worthy of remark, are two statues in bronze of life size, the subjects of which are *Dorothea* and *The Young Naturalist*, a vase in imitation of the antique silver candelabra with statuettes and a group representing *Guy of Warwick killing the dun cow*: The Knight, his horse and the cow are silver, the tree at the foot of which the scene is taking place and the ferns ornamenting the soil, and the ground itself are of bronze. The next compartment is the Birmingham Court; it contains woollen cloths, by Messrs. Stancomb & Son, Clark, Salter & Co., Wilson and Armstrong, Dickson and Laings. A splendid assortment of sewing cottons, by Brooks and Brothers; specimens of shell buttons by Messrs. Banks and Hammond; gun caps, by Messrs. Armstrong & Co., and Walker & Co.; specimens of locks by Messrs. Cotterill and Woolbridge; gold and steel pens, by Messrs. Hincks, Wells, Mason, Mitchell, and Wiley; sounding apparatus by Messrs. Ogden and Ericssons; articles of stamped copper by Mr. Joseph Hill: fishing materials by Mr. Allcock; small steel articles by Messrs. Boulton & Son; a collection of lanterns, cocks and other articles of that description, by Mr. Messenger; beautiful brasses both polished and twisted, also copper pipes and nails beautifully wrought, by Mr. Everitt; metallic cords for pianos and harps by Messrs. Webster & Son; articles of papier-maché inlaid with mother of pearl, or ornamented with paintings of different kinds, by Messrs. Macallum and Hodson, Foothorape, Strowell and Sherton; locks, by

Messrs. Touks & Son; braces, straps, and woven belts, by Mr. Taylor; specimens of buttons of different kinds by Messrs. Aston and Dain, Watts and Marton, Swithkemp and Wright; stationery, by Messrs. Allan and Moore; beautiful specimens of saddlery by Mr. Midlemore, and lastly a variety of surgical bandages by Mr. T. P. Salt, which complete in these different classes, the collection from the manufacturing town of Birmingham, the exhibitors of which have erected an office for general information in the middle of the compartment, which as we have just stated they call the *Birmingham Court.*

The adjoining compartment contains; Twilled cotton fabrics, by Messrs. Paul & Co., and Fyfe and Sons, of Glasgow; muslins and laces by Messrs. Wallace, Macdonald and Brown; white cottons by Mr. Bride; different cotton fabrics by Messrs. McMillan, Laird and Thompson; sewing cottons by Clark; lace by Mr. Turnbull; pottery, crystal and porcelain, by Messrs. Rose, Daniell, Pinder, and from the Staffordshire potteries; beautiful linen damasks, cotton damasked fabrics, and mixed woollen and cotton fabrics, by Mr. Beveridge of Scotland; cotton goods, by Messrs. Hollins, Slaters and Smith; beautiful tools by Mr. Howard; articles of silver and plated steel by Messrs. Dixon & Son; numerous specimens of cutlery by the following makers: Messrs. Saynor and Cooke, Wilkinson & Sons, Hameroft, Norwill & Sons, Spencer & Son, Ward, Oxley, Wastenholn, Wilson and Davy; crystal and plated ware by Messrs. Samson and Davenport; fancy cutlery by Mr. Round.

To conclude the enumeration of the contents of this compartment I must notice the pavilion containing specimens of the linen manufacture of Ireland, the land so renowned for fine linen. This splendid exhibition, prepared by the Belfast Committee, includes everything that is produced by this flourishing branch of industry, fine woven fabrics, muslins, laces, embroidered jaconets, damasked stuffs, and a number of fabrics, the fineness of which is only surpassed by their whiteness and freshness.

Passing from the South to the North side of the nave, at its eastern extremities, we reach the compartments occupied by France, and which are similar to the foreign sections which we have just examined. Proceeding from the eastern to the western extremity of the Palace, we first reach the large Court set apart for the exhibition of French printing, and the bookbinding which forms its necessary adjunct. It consists of books of Natural History by Mr. Victor Masson; architectural works with plans, by Mr. Daly; scientific works by Mr. Roret; the various productions of the printing offices of Messrs. Maison, Garnier and Brothers, Delalain, Gillaumin, Amyot, Levrault, Firmin Didot, Didier, Langlois, Dalmont and Mame de Tour, all well known firms; musical publications by Messrs. Schonenberger, Heugzel & Co , Derrie;

superb bindings for books, in which gold, silver, wood, polished steel, mother of pearl, and precious stones are employed either separately or together in the formation of arabesques, reliefs and artistic designs of all kinds, for the ornamentation of the leather, the primary and principal material which is treated with inconceivable taste and variety of method ; these specimens are principally contributed by Messrs. Lenègre, Curmer Belin, Leprieur and Lortic. We may also admire the illustrated works by Mr. Claye ; the different specimens of letter-press, lithography and engraving, by Messrs. Furne, Bance, Dupont, Baillière ; some beautiful engravings by Messrs. Renouard & Co. ; richly bound illustrated works. by Mr. Lehuby ; engravings by Mr. Louilleux ; archaeological and monumental engravings by Mr. Silberman, of Strasbourg ; types by Messrs. Laurent and Deberry ; religious works by Mr. Adrien Leclère.

To complete this brilliant exhibition which illustrates in this compartment the whole modern art of typography, we have only to examine the collection presented by the Administration of the Imperial printing office of Paris, the principal objects exhibited may be classed as follows : 1st. A collection of punches, matrices, and French and foreign type ; 2nd. A series of specimen sheets ; 3rd. Volumes from the oriental collection and others ; 4th. Applications of electricity to printing ; 5th. Different methods of book binding ; 6th. Models on a small scale of different apparatus for drying, printing ; 7th. Geological and geographical maps ; 8th. A book printed with ornaments in gold and colors, for the Exhibition. The two latter classes merit special mention. In the beautiful geological charts of France, we find a practical application of that admirable invention of the Imperial printing office, aided by the Mining Administration of France, for printing in colors. To color the geological chart by Messrs. Dufresnoy and Elie de Beaumont, twenty-four successive impressions from as many lithographic stones were required, nevertheless the most delicate outlines and the most minute details have been preserved. The book, printed for the Universal Exhibition, is the Imitation of Jesus Christ, this magnificent volume in folio contains the Latin text, and the translation into verse by Pierre Corneille ; nothing can excel the beauty of the type nor the elegance of the ornamentation of this masterpiece of printing of the age, only 100 copies of this work have been printed, and the total expense is calculated to be about £10,000 : a distribution of them has been made among the principal libraries of France, the learned French and foreign Societies and the principal European Courts.

The present Imperial printing office was founded by Louis XIII. and commenced operations in the Louvre in 1640. The Imitation of Jesus Christ was the first great work printed there. This vast establishment em-

ployes 94 hand presses, 14 steam presses, 20 lithographic presses, 1 press for engravings, and two hydraulic presses for hot pressing, it employs about 1,700,000 pounds of type.

The compartment adjoining the one we have just examined, contains objects of art of different kinds such as, wax fruits, by Mr. Barrier, of Meaux, articles of decoration by Messrs. Hardouin and Berrier and Son, sculptors, artistic frames by Mr. Shierry, wax fruits by Mr. Louesse of Paris, specimens of gilding by Mr. Souly, jr., among others a magnificent frame for a glass, executed for Mehemet Ali, various kinds of sculpture for churches by Messrs. Solon and Hugon of Roydor, among which we may remark a Madonna by the former, and a *Notre Dame des Victoires* by Mr. Hugon; Church ornaments in plaster by Mr. Hailigental of Strasbourg, leather ornaments and decorations, such as soffits, wainscotting, cornices, &c., by Mr. Dulud, sculpture by Mr. Crosset, fancy articles of mother of pearl, amongst others a splendid head of the *Ecce Homo*, by Mr. Courquin, sculptures in carton pierre, among which may be remarked a Jesus preaching on the mount, by Mr. Tirant, artificial flowers in shell-work by Madame Rose of Toulon; house ornaments by Messrs. Marck and Coutan; busts by Mr. Guetrot, statues and *bas-reliefs*, increased or reduced in demensions from models by mathematical process, exhibited by the *Société des Arts Industriels de Paris*; specimens of house decorations in imitation of porcelain by a process patented by Mr. Chaudé; wood carving by Mr. Planson; carvings of different kinds, amongst others a superb crucifix in ivory by Mr. Michaud; antique engravings restored, and gildings by Mr. Boucarut; a medallion in carved wood representing *the Holy women at the foot of the cross*, ornamented with statuettes of the four Evangelists by Mr. Siverler; beautiful wood carvings from the house of Wirth of Switzerland, exhibited by the agency at Paris; mirrors and plate glasses by Mr. Mercier, superb wax mouldings, the subjects taken from natural history, by Mr. Stahl, moulder to the Museum of natural history; bronzes and plaster casts for religious purposes by Mr. Pillioud; artistic mouldings, and amongst others an *Ecce Homo*, and *Knights in single combat*, by Mr. Vincent; plaster casts by Mr. Salvadore Marche; in the midst of which, a *Madonna*, *Night* by Pollet, *Pradier's Bacchanal and Leda*, reduced to one fourth their original size deserve attention; miniature plaster casts; copies of the works of Mène and Cain by Mr. Dufoilly; alabasters by Mr. Vullienne; gildings by Mr. Dumond Peterelle; *a Guardian angel* medallion in wood by Mr. Victor Froyer; ivory carvings by Mr. Bland of Dieppe; among which we may notice a magnificent *Christ* one fourth life size and a cup ornamented with sporting designs, an ivory *Christ* and a *bas-relief* of the same subject by Mr. Wolf of Paris; paper and leather beautifully

cut with scissors by the Countess de Dampierre; specimens of electro-plate by Mr. Beaure; heraldic engravings upon metal by Mr. Chevalier; engraving in intaglio and in relief on fine stones by Mr. Brasseux; architectural ornaments in Roman cement by Messrs. Rozet and Menisson of Vitry-le-Francais; a superb box of carved ivory by Mr. Moreau; plaster casts reduced and increased in size by the mathematical process by Mr. Sauvage; among others a reduction to one half and an enlargement by one half of the Venus of Milo, a collection of fruits and vegetables in plaster by Messrs. Lédion and Buchetet of Paris; specimens of monuments in full relief, among them we may admire the model of the Cathedral of St. Jean des Vignes at Soissons by Mr. Betheder of Soissons; the astonishing production of monuments in shell work by Mr. Hostin d'Etel in the Morbihan. It is almost impossible to imagine, how this artist can reproduce in this manner by the arrangement of sea-shells all the details even to the statues on the monuments,—as for example in his model of the splendid Cathedral of Toul,—small statues less than one inch in height are formed in perfect accordance with artistic principles, of more than twenty shells differing in form and size. We should do wrong to believe that these works are mere child's play, nothing illustrates so strikingly as these works of art, the vast Gothic lace work of the Cathedrals of the middle ages, which will continue to be objects of admiration when many other objects will have disappeared, for *man does not live by bread alone*, his understanding and mind require other food, and failing this nourishment, the human race begins to degenerate, each stone detached from the palaces of Babylon and the temples of Egypt witnessed another step taken by these nations towards the lower regions of barbarism; when a people not only maintains its monuments, but reproduces their beauty, it is an evidence that it is increasing in intellectual vigor.

Let us go on to the next compartment, which is filled with articles comprised in that category which Parisian industry has entitled *Fantaisies*. We see fruits in marble by Mr. Carette; specimens of looking glasses by Mr. Luce; alabasters by Mr. Everard; articles of iron in *repoussé* work and particularly the shield representing the battle of Rosbec by Mr. Merreille; bas-reliefs in ivory by Mr. Catel d'Abbeville; wax fruits by Mr. Montel of Toulouse, including 1300 varieties; a *Christ* in wood and other statuary by Mr. Faurre of Paris; articles in ivory by Mr. Morest, and above all, his model in relief of Notre Dame de Paris and his *Venus de Medici*, reduced to a proportion of one tenth; ornamental furniture by Mr. George; fancy bronzes by Mr. Asse; fancy fans by Mr. Camaret; articles in stone and malachite by Mr. Theret; sculpture and fancy articles in wood by Mr. Viardot; gilded bronzes by Mr. Garnier; Scotch articles shewing the different tartans on wood and leather by Mr. Gency; chased steel

articles burnished or gilded, by Mr. Henry, among which may be seen a superb hunting knife, travelling necessaries, porte-monnaies and other fancy articles by Messrs. Magnet, Laurent, Henry, Schlose and Brothers, Sormani, Felix, Aucoc, Tahan, Monneret, Berthet, Huet, Boguet, Kapp, Gaillard, Vervelle, Muller, Triéfus, Péret, Stagmuller, Macé and Boulanger; it is needless to remark that these artists are engaged in different branches of manufactures, the raw material employed serving to distinguish them. The taste displayed in the fabrication of these articles is no where more strongly manifested than in Paris, whence immense quantities of these articles are annually exported.

Let us continue our ramble through the same compartment. Here we find liquor stands and oil cruets by Mr. Maréchal; portfolios by Mr. Fenoux; fancy caskets by Mr. Tabor; fancy articles ornamented with cameos, precious stones, enamels, mother of pearl, &c., by Mr. Lenos; novelties in earthenware and porcelain by Mr. Gellée and Brothers; gilded jewellery by Mr. Delecomte; fancy articles in wood by Messrs. Beker and Otto; decorated and fancy furniture by Messrs. Coêbel and Martin.

To conclude the description of this extensive compartment let us say a word about a Chinese Kiosque, erected in the middle, and in which is a number of toys, dolls and automata by Messrs. Voisin, Girout & Co., Theroude, Verdanaime and Bontems. The latter exhibited a small pavilion which attracted immense attention at the New York Exhibition, and even here was an object of great curiosity. This stall contained a tree, about which flew, walked, drank, sang, and remained quiet by turns, automaton birds, perfectly natural in appearance. We ought not to forget that the celebrated Vaucanson did not disdain to exercise his mechanical genius in the construction of automata, and that by these means he succeeded in resolving many great problems.

The next compartment contains a part of the magnificent collection of French crystal and glassware, which is unequalled in the world, considered either as works of art, or as a branch of manufacture.

Here we have watch and spectacle glasses and goblets, by Messrs. Burgun, Berger, and Co., of Moselle; superb engraving on glass by Mr. Becker, of La Meurthe, among which we may particularly admire the descent from the cross by Rubens, the Madonna, after Raphael, and a bust of the Emperor. The collection of glass and crystal wares include specimens of every branch of manufacture connected with them, vases, goblets, basins, candelabra, of white, colored, gilded, cut, polished or unpolished glass, in imitation of porcelain and enamels, ornamented with arabesques, and figures sent from the glass manufactories of Vallerestlial, Lyons, St. Louis Baccarat, La Villette, Clichy, and Pantin, and by Messrs. Mougin and Brothers, of Vosges. We may also notice the artificial flowers by Messrs.

Moussier and Boulland; the letters painted in gold on glass by Mr. Lambourg, of Saumur, a lion of life size attacked by a serpent; the whole in glass deceives all the visitors. Visitors are continually in ecstasies *at the skilful manner in which these animals are stuffed*, and can hardly be brought to believe that the scales of the serpent, and the beautiful mane of the lion are composed of glass.

We come now to the principal compartment of French gold and silversmiths' work, in which gold and silver glitter in every shape and form. We admire successively, the contributions by Mr. Grichois, called intercrystal plate, these consist of arabesques, or other designs in gold or silver enclosed in the middle of transparent glass ornaments; the exhibition of vases and other ornaments for religious purposes, by Mr. Thierry; articles of jewellery, of gold and brilliants, for religious purposes by Mr. Gerbaud, Jr.; articles by Mr. Poussielgue Rusand, particularly a Gothic ostensory; others by Mr. Delani, all of silver, among which we may remark a cup representing a river and other fresh water subjects; gold ewers, and basins, and other objects, by Mr. Charpentier; the beautiful collection by Messrs. Favier and Neveu, of Lyons, among which we may particularly remark, six ostensories of large dimensions, a golden ciborium with medallions in Sevres porcelain, and garnished with brilliants, and a patena ornamented with a bas-relief representing Jesus Christ rising from the tomb; gold plate by Messrs. Cosson, Corby, Thouret, Baleine and Son; silver plate by Mr. Delajuveny; gold plate inlaid with ornaments in ivory, &c., by Messrs. Veyrat and Rudolphi; magnificent articles by Mr. Casse, among others, a medallion shield 30 inches in diameter, with hunting subjects, the top of the shield is formed of a statuette of a huntsman winding the horn, and holding six beautiful greyhounds in a leash, sylvan ornaments decorate the perimeter, and surround three medallions containing bas-reliefs, representing wolf, boar, and stag hunts at the moment of the death.

We observe the plate exhibited by Mr. Callot; specimens of plate for religious purposes, by Triouellier, and particularly an ostensory of colossal dimensions for the permanent exhibition of the Sacrament. This large work is about four feet in height, the rays of the glory extend two feet, the pedestal is adorned with statues of the four evangelists, the base is composed of a sheaf of wheat surrounded with statues of the three divine virtues, the base of the rays of glory is surrounded with a vine, statues of angels and with clouds; the statues of the evangelists, and of the divine virtues, and the clouds are composed of silver, the rest of the piece is of gold.

Let us in conclusion admire the bronzes for church decoration by Messrs. Jansse, Hébert and Bachelet; and the mouldings for gold and silver plate

by Messrs. Henry Hayet, Leonard and Guayton. Among the articles exhibited by Mr. Guayton, we may remark a calvary, after Justin, and a vase representing a subject from Dante's Inferno; the handles, periphery, and base of the vase are adorned with figures of the damned, interspersed with numerous serpents; upon the top is a group representing Dante and Virgil his guide.

We now enter the porcelain saloon, not the one containing the Sevres porcelain however, but the one dedicated to the contributions of different French makers; we notice bright colored china services by Messrs. Mansard and Son; fancy articles, statuettes, animals, &c., by Messrs. Capoy and Brothers; vases and candelabra by Messrs. Laroche and Pannier; specimens by Mr. Jacob Petit, especially two statues, three-quarter size, of two young gardeners, male and female; delicate articles by Mr. de Battigues, among others a large vase, with paintings representing the emblems of music; the handles being formed of small figures of cupid; services, vases and other articles by Messrs. Macé, Ernie and Condrec, Taimours and Honore; statues and statuettes by Fleury, among the rest a Virgin of the size of life; imitations of antiques and of Chinese and Hindoo vases by Mr. Mayer; Chinese porcelains by Finet; porcelains by Mr. Lerosey, among others a magnificent dessert service, called the *Pompadour service*, and three medallion portraits, of Napoleon I., Napoleon III. and the Empress Eugenie; crystal and porcelain ware by Messrs. Jouhanneau and Dubois, particularly two beautiful *renaissance* vases of biscuit, with bas-reliefs of the feasts of Bacchus; Mr. Boyer's collection, among which, deserving of special notice, are three glass basins with hunting subjects painted on them, one representing a stag hunt, another a wolf hunt, and the third a bear hunt; and lastly, articles by Mr. Gille, junior, in the midst of which we particularly remark a quail fight, and among the groups in biscuit ware, an *Immaculate Conception* of life size, and a charming group, half life size, called Penitence; an unfortunate *fille perdue* half concealed by her flowing tresses, at the feet of a *religieuse* who is in the act of presenting the cross to her, the contrition of the guilty one and the confiding charity of the good Nun are admirably rendered.

The next three compartments, which communicate one with the other, are devoted to the exhibition of French bronzes, a most extensive manufacture, of which Paris is specially the centre of production, and the whole world the market. The French exhibitors in this class are very numerous, and among the contributions of each one are objects deserving of admiration, which we cannot possibly remark in detail; we may, however, stop to admire the works which more particularly strike us, among them, the statuette of a young negress going to the fountain, by Mr. Daubrec, two charming groups, forming a pair, by Mr. Lachesne of Caën.

In the first of these groups a coiled serpent is in the act of threatening a child half lying on the ground, protected by a faithful dog; the mixture of hope and fear on the part of the child, the resolution of the dog who is covering the child with its body, the hesitation and malice of the serpent are admirably depicted; the other group represents the dog panting but victorious, the body of the serpent stretched out and the head parted from the body lying at some distance, the child in his transports of gratitude holds the dog in his embrace, his beautiful little head intermingles the tresses of his lovely hair with the silky locks of the noble animal; the effect of these groups is really enchanting, innocence and devotion are triumphant. In the contemplation of such objects as these, we recognize the civilizing influence of the arts.

Next we have an exhibition by numerous contributors, of vases, candelabra, clocks, statuettes, mantle ornaments, &c., in bronze, plain, gilded, and colored, and in galvanized zinc. Let us proceed to consider the finest specimens of art; the shield with the battle of Brenneville, twelfth century, represented in relief, by Mr. Brignier, engraver; two bathers, one-third life size, by Mr. Paillard; a man at-arms sounding the trumpet, by Mr. Charpentier; two groups by Mr. Labrone, one representing a good old Monk giving his crucifix to be kissed by two sweet little angels of children, the other Heloïsa and Abelard, at the moment when the recluse of the Paraclet exhorts his unhappy friend to think of Heavenly things, saying to her, *So do, that having been separated here upon earth we may be united forever hereafter;* a Grenadier of the Guard, a Zouave and a Scotch Highlander, by Mr. Miroy; Venus after Pradier, by Messrs. Duplex and Salles; a dancing girl, small gilded bronze, by Mr. Leblanc; a bust of Dante, by Mr. Thiébault; a snake on a leaf in electro plate, by Mr. Feuquières; statue of a young fisherman harnessing a tortoise, by Mr. Durand; a work table of bronze and porcelain, and the marriage jewel case of Marie Anlomette, by Mr. Kreisser; the Bacchanal, after Clodeon, Atalanta lacing the buskin, after Pradier, the sorcerer riding on a dragon, giving notice of the sabbath, after Faillot, cast by Messrs. Moris, Son, & Co.; to which must be added a boar hunt; in this latter group the artist has given a life like appearance to the course of the dogs, they being only fixed at the point of contact with the animals they press upon; electro plated medallions, by Mr. Lefeure; these medallions sell at the low price of from three shillings to two pounds ten shillings; lanterns for gas by Mr. George; bronzes for churches, by Messrs Foëx & Co.; the nymph in the cradle, sculptured by Mr. Moreau and cast by Messrs. Miroy and brothers. Alma reposing, sculptured by Mr. Poitevin and cast by Mr. Bay, the finish of this piece is remarkably fine, the dancer has thrown away a part of her garment in order to cool herself, her castanets lie on the ground by

her side, she seems fatigued, this dark daughter of the east, and the languid postures which her lassitude causes her to assume, are still more graceful than those of her irregular dance.

A good number of these works of art are in galvanized zinc, on which account the price of the article may be much reduced without any effect upon the artistic merit or the lasting capacity of the objects; for example, the group of *The Sorcerer proclaiming the Sabbath* is to be had for £45; if it were bronze the price would be £250. *The Nymph in the Cradle* may be had for £27 10s.; were it of pure bronze the price would be £75; and *Alma reposing*, sold for £100, would be worth £500.

We shall conclude this sketch of the circuit of the nave by a remark upon the process of covering with a coat of pure copper, wood, iron castings, zinc., &c., by Mr. Oudry, of Paris. By this process Mr. Oudry covers with a layer of copper more or less thick, without rivet or sawder, so that it adheres perfectly to any object whatsoever, from a nail or a piece of wire to a canal lock gate or the bottom of a ship. It is needless to say that this result is produced by electricity; the specimens exhibited are very beautiful, a wooden plank is covered on one side with a coat about one millimetre in thickness. No means other than the process are adopted and the union is perfect.

V.

UNDER THE GALLERIES, FIRST AVENUE.

We are now about to examine the articles exposed on both sides of the avenue which extends around the nave immediately beneath the galleries. Starting from the north side of the building we cross over to the south-western extremity of the Palace, and notice in passing the linen and cotton fabrics of French manufacture, by Mr. Schlumberger, of the Department of the Upper Rhine; the stuffed work by Mr. Lefèvre, of Paris, particularly a swan and a superb boar's head. Then diverging a little to the right we see the articles exhibited in the west vestibule, namely, vases, ornaments, and other articles in glass and crystal, by Mr. Steigeirwald, of Bavaria; lattices, iron chairs and metal bird cages, by Mr. Lebouc, of France; beautiful veneered flooring, by Mr. Wierth, of Wurtemburg iron garden furniture, by Mr. Tessier, of France; and wire bird cages, by Mr. Clairin, of Versailles.

Leaving the vestibule and crossing to the south, we inspect the exhibition of cutlery, by Mr. Dittmar, of Wurtemburg; thimbles of gold and silver and inlaid with hard stone, by Mr. Gabler, of Wurtemburg; a miniature plan in relief of Jerusalem, by Mr. Louis Erbe, also of Wurtemburg; linen and cotton fabrics, by Messrs. Stauss and Leushner, of Saxony.

Following the left hand, we traverse the long avenue which crosses the Palace from west to east, and on the two sides we have clocks in wooden cases, from the Black Forest, in the Duchy of Baden; a very extensive collection of cutlery, by Mr. Holler, of Prussia; axes, cutting tools and saws of all kinds, by Mr. Linderberg and Brothers, of Prussia, especially a circular saw five feet in diameter; buttons, snuff boxes and mantel ornaments in metal, by Mr. Greef, of Prussia; cornices, door handles, &c., for house decoration, in stamped copper, by Messrs. Kulhmann Brothers, Adamy, Schmole and Schmidt Brothers; linen fabrics of various qualities, by Count Harrach, Messrs. Kufferle & Company, Groer Brothers, Oberleither, Folser, Walter & Hruska, of Austria; linen and hempen thread, from the spinning mills of Wiesenberg, in Moravia, Austria; table cloths, by Mr. Schneider, of Austria; mats, cords, &c., of linen and hempen thread, deserving particular notice, by Mr. Haussman, of Austria; flax and hemp from the Central Society of Austria, whose sales amount to about 200,000 livres per annum; cloths and flannels, by Messrs. Rhalerbeck, Gerard Dubois and Deheselle, of Belgium; carded and spun wool, by Mr. Xoffray, of Belgium; linen thread, by Messrs. Oldenhove, Vandelbucke, and the *ateliers de charité* of Gand, in Belgium; four chairs, by Messrs. Eliers & Blake, of Boston, United States; French productions in India rubber, amongst others some very pretty shawls and a preparation for sheathing ships.

We now pass in front of the middle aisle, which leads to the passage to the Panorama. This little avenue contains specimens of that ornamental Parisian cabinet ware, the articles of which present an incredible richness of appearance, being manufactured of the most precious woods, adorned with gilding or arabesques or with statues and bas-reliefs of bronze or gilded copper. The objects here exhibited are from the factories of Messrs. Wasmus Brothers, Schnidler, Muller, Gros, Jeanselme, Marcelin, Roux, Charmois and Huret.

Re-entering the avenue which we left for a short time, we see printed cottons from Manchester, United States, pretty boots and shoes for ladies, by Mr. Shaw, of New York; table cutlery, by Mr. Garside, of New Jersey; white and colored cottons, from the Amoskeag Company of New Hampshire, and the productions of the Hamilton Woollen Company of Massachusetts.

Next we have on each side of the avenue, pavilions set apart for the manufacturers of England and Scotland, more particularly of London, Aberdeen and Glasgow; woollen cloths and fabrics, by Messrs. Wrighley, Crombie, Huddersfield, Clay, Day & Son, McFarlane and Cross; mousseline de laines, alpacas, light stuffs, and other fabrics, by Messrs. Sugden, Titus, Salt & Son, Blake & Company, Boyd, Grum, Gourlie & Son, Auld & Buchanan, and Hamel; coarse woollen fabrics and carpets, by Mr. Hadden; watered fabrics, by Messrs. Walter Milligan & Son; shawls and handkerchiefs of silk and wool, by Messrs. Evans & Co., Swaisland, Backer, Tuckers & Co., Wingate & Son, Walford, Fairer & Harrison; diapered and plain fabrics, by Messrs. Somerville, Dallas; carpets, by Mr. Templeton; hatter's work, by Mr. Blair; sewing cotton, by Mr. Clarke; strong diapered fabrics, by Messrs. Scales & Herbert; brushes, mats and cordage of cocoanut fibre, by Messrs. Widley & Co.; a fine collection of sail cloth, by Messrs. Baxter, Brothers & Co., of Dundee; specimens of linen thread, by Messrs. Dangan & Co., of Dublin.

Crossing from the south side of the palace to its eastern extremity, we have on the right a collection of fishing utensils and apparatus used in Ireland. We see immense hand nets and miniature models of the slopes used to serve as passages for fish. Some of these are constructed with steps so as to enable the fish to ascend streams notwithstanding the erection of dams or other impediments for the creation of motive power, manufacturing or industrial purposes. Employers of water powers in Canada ought to be compelled to take similar precautions, costing as they do almost nothing, especially on the streams flowing into the lower part of the St. Lawrence which salmon generally ascend. The small tanks belonging to these models are filled with water supplied by a fountain in the palace, and contain small fish which are furnished by Mr. Mallet of Paris, Professor of Pisciculture, who rears pike, carp, eels, &c., as other people do puppies. He also exhibits bottles containing the spawn of these different fish, and points out to us those which are good and those which are *clear*.

Leaving this interesting quarter, having cast a glance upon a curious primitive canoe of leather and basket work called a *Coracle*, used in ancient times by the inhabitants of Gaul and Ireland, and comparing this wretched specimen of navigation and the pretty bark canoe of our Canadian Indians, we then enter the avenue on the French side. Here are specimens of basket work, wooden hats, baskets, boxes, vases of basket-work, by Messrs. Amberoy, Mutet, Desiugues, Renardin, Pierson, Tordeux, Derk, and Barbotte, elegant feather brooms in all colors, by Messrs. Loddé, Hénoc and Lhuilleur; hair jewellery by Mr. Lemonnier; specimens of brushes, clothes brushes, tooth brushes, scrubbing brushes, &c., by at least 20 makers in different

parts of France; mountings for fans from the factories of St. Geneviève, Oise; artists' brushes, by Messrs. Mariette, Saunier, and Mesdames Fillion and Fontana of Paris, a large collection of pipes, snuff boxes, tobacco pouches and other articles of tobacconists' ware, by several exhibitors; statuettes *incassables* by Messrs. Delattre & Co.; two beautiful calvaries in ivory, one by Mr. Desnoyel, of l'Oise, and the other by Mr. Sacépée of Dieppe; cheap wooden and horn combs by Mr. Corneil of l'Ariége; a number of fancy articles, and playthings comprised under the head of *Parisian articles;* rosaries, by Mr. Fillot, of Jura; gold and silver gilt papers and burnishing stones, by Mr. Dufour of Paris; beautiful book bindings by Messrs. Cerf and Nakara, of Bordeaux, among them a baptismal gift covered with green velvet, sprinkled with golden bees, and surmounted with a charming statuette of a child in a cradle.

A row of compartments contains magnificent specimens of ivory carving, for which the town of Dieppe has attained so high a reputation: in this beautiful collection the following exhibitors have distinguished themselves; Mr. Lafort, by an ivory cover for a Roman Missal; Mr. Poisson, by a gothic chapel for an oratory; Mr. Correau, by a statue of the Holy Virgin in a gothic niche; Mr. Vangorp, by a beautiful Christ; Mr. Belhoste by a powder horn, with bas-reliefs, representing the hunting goddess Diana; Mr. Garnot by an *Ecce Homo* of great beauty, one fourth life size.

We next come to a collection of parasols, walking canes, and whips of all kinds, tastefully and richly ornamented with ivory, metals, precious stones, &c.; next we have dolls and children's toys, by more than a dozen exhibitors; umbrellas by Mr. Callier; beautiful fans adorned with drawings, and feathers, with mountings of gold, ivory or precious woods, also common fans sold at 2½d. a piece; specimens of leather by Mr. Josselin; scabbards for swords, and sabres, and sheaths for hunting knives, stained ivories and stamped leather by Mr. Obré; masks and dominoes in great variety by Mr. Cochet; vases and services of the Algerian cactus pattern, mounted in silver by Mr. Toussaint; plate by several firms in Paris and the Departments.

We may particularly notice the historical armor, objects of art and classical jewellery, by Mr. Granger, furnisher to the opera; we notice in his collection a splendid antique cuirass, of beautiful workmanship in gilded copper, an Imperial Crown of gilded copper, and a knight's complete suit of armor, in the Italian style.

We now arrive at the porch at the grand entrance to the Palace; in passing we notice numerous vases, statues and other objects, in porcelain, French sandstone, common earthenware, and terra cotta; among these we observe a door in the Byzantine style, adorned with statues of half life size,

and a Virgin in the monumental style from the factories of Messrs. Virebertz Brothers of Toulouse, a Polyhymnia after the antique, a colossal statue a Leda, life size, a boar hunt, and a specimen of the application of terra cotta to the external decoration of houses, these articles are exhibited by Mr. Jarnant, junior, of Paris.

Re-entering the grand lateral avenue, we arrive at the extensive collection of French boots and shoes, which comprises every description of foot gear, of every imaginable material, even of wood; it is needless to speak of the richness and elegance of a part of these articles, nor of the excessive cheapness of the other part. This collection contains contributions from more than forty makers, chiefly Parisian. Visitors remark particularly the historical collection by Mr. Pillot, particularly the brodkins and the antique cothurnes, the foot gear of the middle ages, and the boots of the *mousquetaire.*

Next we have a beautiful collection of fans by many contributors; buttons of gold, silver, copper, iron, wood, shell, mother of pearl, silk, and what not, exhibited by a score of contributors; coquettish looking garters by Mr. Jourdain; clasps of all kinds, studs, and shirt buttons, and other fancy articles by Messrs. Dandé, Chambellau, and Hesse, Jr.

Bronze manufactures comprise so wide a range, that notwithstanding all the specimens we have already enumerated, here again we have tubes, walking sticks, fire guards, and screens, all manufactured of bronze by Mr. Pierou, of Paris; lamps and chimney ornaments, and other articles of bronze and copper gilt by Messrs. Rivard, Becquet, Gousse, Renardeux, and Lehuitel; galvanized artificial flowers by Mr. Gervaisot, specimens of gilding and varnishing in imitation of gold by Mr. Lauglasse.

Arriving at the end of this avenue on the French side, we notice the various fabrics in wool, silk and india rubber, applied to the manufacture of boots and shoes, by Mr. Jacquemin Gaudant. Beautiful felt for clothing purposes, and for carpets from the manufactory of Choisy le Roi; and the variety of fabrics in carded wool by Mr. Pin Bayart, of Rouhaix.

The exhibition of these two branches of woollen manufacture, *felts* and *fabrics of carded wool* is very interesting, on account of the great beauty of the specimens on view.

VI.

UNDER THE GALLERIES—NEAR THE WALL.

We now proceed to the inspection of the first compartment under the galleries. Here are placed those articles, the exhibition of which occupies a large space, on account of the large number of exhibitors in each class, and which do not possess the same degree of interest as articles in the other parts of the Palace, which we have visited, nor as those placed in the upper galleries and in the panorama.

We begin with the French department, which commences at the Western extremity of the Palace, and shall continue our ramble from north to south, then from east to west, returning to our starting point.

Here we have splendid carpets by Mr. Desbischops Grau, from the Department dû Nord ; a collection of cloths, stuffs, and fabrics in wool, cotton, and linen, contributed by about fifty exhibitors from different parts of France ; hair cloths and fabrics, plain, colored and mixed with silk, hats, shoes, crinolines, &c., by several exhibitors ; hair and silk fabrics for furniture coverings by Mr. Joliet, of Paris ; a vast collection of hempen manufactures by about twenty exhibitors from the Departments, a large collection of counterpanes in linen, cotton, and silk, among which we observe the fine linen counterpanes shewn by Mr. Buffault, those of cotton by Mr. Albinet, and those of silk by Mr. Guyon ; also calico counterpanes by Madame Lacroix, of Les Alpes ; serges and flannels by more than ten exhibitors ; hangings and carpets, particularly those by Messrs. Labouriau and Trapet ; clothing by Mr. Parissot, from his establishment in Paris, called *La belle jardinière.*

Passing to the foreign side, opposite the French, we enter the Wurtemburg Department. Here we have carpenters' tools by Mr. Bolsterli ; iron utensils, fancy articles, and glass ware by numerous exhibitors ; a fine silver church lamp in the Gothic style by Mr. Bruchmann ; iron and wooden furniture, particularly a toilet bureau of cedar in very good taste ; pianoes, clocks, specimens of printing and binding, various cloths and fabrics, hats, &c. ; paper hangings by Mr. Veiel, and beautiful stuffed birds &c., by Tièdemann, among which we admire *an owl attacked by two weasels.*

We next come to the compartment of Bavaria, which contains jewellery, and ornamented arms, stained glass, glass ware, and a collection of toys, a fine assortment of musical instruments and wood for violins, a fine

collection of articles in wax and plaster, articles for religious purposes, anatomical preparations, &c., colored and gilt papers, fancy articles in horn, ivory and metal; hose for fire engines; marquetterie work by Mr. Hartman, of Munich; fine files by Mr. Gruber: tools, horse shoes and other articles in metal; beautiful wire cloths by Mr. Kalteneker, of Munich leather trunks, a collection of pencils, a variety of cloths and fabrics; and lastly, some concave mirrors by Mr. Kalb.

Saxony comes next to Bavaria, and exhibits a variety of linen and cotton fabrics, embroidery, and printing on cloth; a fine collection of shawls by Messrs. Ambroun and Schneiber; specimens of xilography, specimens of bookbinding and printing, very fine carpets, articles of clothing; beautiful boas, muffs, and tippets of feathers and down by Mr. Pattermann.

After Saxony we have the Duchy of Oldenbourg, which presents a pyramid of fine stearine candles; cameos, and other precious stones, and a collection of cloths and other fabrics.

Hanover is distinguished by its fine collection of linens and hemp fabrics of every variety, hunting weapons, a collection of toys and fancy articles, clocks, metallic articles, among others a bronze statute of the King of Hanover.

Brandeburg and Silesia exhibit a beautiful and numerous assortment of cloths and linens.

Luxembourg exhibits a collection of cloths; cotton fabrics called *tiger skins*, which sell at from 4d. to 7½d. a yard, if we are to believe the *affiche*; gloves, bonnets, lace, and clothing, paper hangings, tobacco, slates, and a large cabinet of bronzed wood, ornamented with statues and flowers cast in metal. It is certainly not distinguished for good taste.

Next comes a part of the compartment of Prussia and the other German States not specially referred to. The various objects which present themselves are, a large collection of different wove fabrics, beautiful and good pianos, beautiful little landscapes and other designs in hair, very beautiful of the kind, by Seel; tapestry work, furniture, leather prepared for use in the manufacture of pianos, wood and cork carvings, the latter remarkable for their delicacy; frames of gilt wood, specimens of photography, walking sticks, whips and other fancy articles; a collection of buttons and studs; also of boots and shoes and other articles of clothing; a table of gilt wood, the top of which is covered with a cloth composed of silk and pearls, and bearing escutcheons which contain the following singular collection of portraits: Napoleon l, Peter the Great, Washington, Frederick II, Voltaire, Shakespeare, Goëthe, and Schiller. We also have in this section a collection of toys and fancy articles; stoves; several fire proof safes of beautiful workmanship and tasteful design; a collection of plushes of different

colors, and cloths of great beauty, from Aix la Chapelle: lastly, a large collection of manufactures in metal, instruments, utensils, and tools; articles used in saddlery, and bronzes, among which we observe a *Christ*, one-third life size; a fine group representing *the baptism of Clorinda by Tancred:* the warrior is in the act of pouring water from his helmet upon the forehead of the infidel; the base bears the inscription from Jerusalem Delivered: *Io vado in pace.*

In the middle of the exhibition from the Zollverein States, we observe a collection of mineral waters, worsted and silk embroideries, clocks, musical instruments and beautiful wire cloths from the Duchy of Baden.

We enter the Austrian section. Austria is one of those countries which displays the greatest amount of that artistic taste in the finish of articles, which gives an increased value to the object. Hence we have a collection of engravings and articles belonging to the printing, book and stationery trade, a collection of hardware, secretaries, work-boxes, &c., colored papers, gold and silver gilt for book-binding, pasteboard models of Venice, a trophy composed of canes, pipe stems, &c., playing cards in exquisite taste and of brilliant colors, beautiful little designs in marquetterie work, specimens of photography; iron bedsteads, by Mr. Schéder, who has succeeded in removing the appearance of discomfort presented by iron furniture generally; a collection of fire proof safes, a large collection of tools of all kinds, toys, small carvings in wood, a large collection of meerschaum pipes, the finest in the building; among them are immense pipes, on which groups of figures are carved; one represents in bas-relief the taking of Missolongui by the Greeks, the figures are about two inches in height, and there are more than twenty about the bowl of the pipe; fancy articles of all kinds, a collection of umbrellas, accordeons, a numerous and varied collection of woollen thread, among them the fine wool used for cashmeres; fine cloths from Lombardy, and a large pavilion filled with cloths, alpacas, shawls and woollen fabrics, by Mr. Liebig; a large collection of pearl buttons, spectacles, fine engravings, leather trunks, and portmanteaux, carvings, frames, and ornaments in carton-pierre, a vast collection of cloth from Austrian Italy, and other parts of the Empire, among which we particularly observe the white and colored cloths by Messrs. Moro, of Carenthia, and Blaschke of Moravia; basket work, a collection of hair cloths, coarse fabrics and plushes, carpets, marquetterie work and furniture, among which we admire a beautiful cabinet of black walnut and rose wood, simple and elegant in style, from the manufactory of Mr. Oggioni of Venice.

This long catalogue of articles, which may, indeed, appear tedious, cannot, however, fail to be useful to my Canadian readers. In a rising country, to which but few travellers turn their attention, and in which the means

of diffusing information are still limited, the mere statement of the different branches of human industry is of itself calculated to originate many useful projects; besides, it is interesting to be made aware of the parts taken in the arts by the people of different nations.

Let us continue our journey through the numerous compartments ranged along the walls of the Palace of Industry. We had reached the Belgian Court, on the foreign side. This Kingdom, the exhibition from which is so remarkable, presents in this portion of the space she occupies, specimens of horse hair fabrics, woollen cloths and stuffs, counterpanes of all kinds, linen fabrics, specimens of thread, sail cloth, and a collection of table linen; among the latter a beautiful table cloth, the designs on which represent a hawking scene in the days of chivalry; a large collection of pottery, tiles, bricks, draining tiles, and large melting pots for zinc; a large floor in marquetterie work, twenty feet square, exhibited by Messrs. Dekeyn & Brothers, of Brussels. In the exhibition of marquetterie work, we have wood sawn into very thin planks, from the knot of an oak, which gives it a beautiful spotted appearance: this is a further proof of the care taken in Europe in the search of that description of timber which abounds in our forests, and which we altogether neglect in Canada. Among the furniture exhibited, we observe a fine large cabinet by Mr. Vanderbrande of Malines; next we have in the Belgian exhibition a collection of drawing tools, beautiful hempen cordage, and a cable three-fourths of an inch in circumference and fifty fathoms in length, of brass wire twisted in strands; a large collection of zinc, iron, wire, metal utensils, tools, nails, fire proof safes, iron in broad sheets almost as fine as sheets of paper, ornaments in cast iron of great lightness, a superb bronze vase for the garden.

We enter the United States' section. Here we have a large collection of articles of clothing and safety apparatus, and a variety of utensils in flexible and hardened India rubber. The greater part of these articles are of French manufacture. This collection contains a beautiful American map of the United States, on India rubber. If the printing upon such a substance be indelible, it may be fancied of what utility to the mariner this application might become.

We now reach the English compartments, which contain a vast collection of the following articles: Articles of cast and polished iron, among others lattices, stoves and mantel pieces; articles of papier maché, such as work-tables, portfolios, &c.; harness mountings, in iron, copper and other materials; large common carpets, cloths, alpacas, tartans, shawls, muslins and other woollen fabrics, silk thread, hair cloths, a large collection of buttons, a large assortment of locks, &c.; numerous specimens of needles, pins, and other small articles of that kind; wrought iron uten-

sils, a fine large iron lattice of great lightness and in excellent taste; large and small articles of pottery, among which we observe a jar ten feet in height by five feet in diameter; church clocks, mixed fabrics of linen and cotton, silk and cotton, carpets, hangings, various light fabrics, fowling pieces and harpoon guns for whale fishing, specimens of wire, a collection of lamps, tiles, bottles and articles of general use; a billiard table, articles of furniture, particularly a large couch of citron wood, maple and rose wood, by Messrs. Trollop & Son; a collection of porcelain, among which are some works of art in biscuit, among others *The Death of Abel*, by Messrs. Minton & Co.; a *Moses taken out of the Waters*, and *Titania*, by Mr. Wedgewood; a large collection of shawls and other fabrics; a large collection of tools, cutlery, hardware, steelware; a large circular saw, six feet in diameter.

Next we have, still in the English Department, the following articles: carpets, a large collection of cotton fabrics, unbleached cotton, ticking, fustians, velvets, cotton sheeting, furniture stuffs, braid, in fact every description of cotton manufacture, particularly some beautiful cotton counterpanes stamped and embroidered, exhibited by the Manchester Committee; shawls, plaids, horse clothing, counterpanes, flannels and other woollen fabrics, sail and packing cloths, hemp, matting, mats of cocoa-nut fibre, stoves and other cooking utensils, cordage, threads, fishing-nets, and lines; building materials, modes of war vessels, yachts, life-boats, among others a life-boat constructed partly of wood and partly of India rubber, which may be folded up so as to occupy hardly one-fifth of its real volume, by Mr. Berthon; models of bridges, viaducts, docks, quays, and locks; imitations of woods and marbles, painted on wood; a church organ, pianos, and metallic strings for musical instruments; walking-sticks, bows, and arrows, and other fancy articles; hunting weapons, and, lastly, a collection of decorations and objects of art in carton-pierre, the most beautiful of which is an altar for a church ornamented with bas-reliefs and surmounted with five niches, the one in the middle containing a statue of the Virgin, on each side are two angels bearing the attributes of the mother of the Saviour. The design of this altar is worthy of remark.

We now pass to the French side, for it must not be forgotten that France occupies the whole of one side of the Palace, the whole of the Panorama, all the passage, and more than half the *annexe*. The French Department, which we are now about to inspect rapidly, contains a collection of linen and cotton fabrics and articles of clothing, and here we have a series of articles of these manufactures in every stage from the cheapest article produced, up to the richest and most costly.

The first objects we notice are articles of ladies' dress, corsets, caps, bonnets, mantillas, in fact all the articles comprised under the term *confection*

de blanc et de fin, collars, chemises, neckerchiefs, gloves, stockings, &c.; next are dresses, men's apparel, cloaks, garters, &c., a fine collection of furs, and skins and winter clothing, among which we notice a beautiful mantilla called *caraco*, of crimson velvet trimmed with the finest furs, which is labelled *martres du Canada* price 3000 francs; in the midst of this exhibition of clothing, in respect of which Paris gives the laws to the whole world, we notice a collection of historical costumes of the Court of France at different periods.

Let us stop a moment before the exhibition of Mr. Letailleur, who has succeeded in replacing furs which have become too rare, by sheep skins prepared and dyed in various ways and colors, and with which also he manufactures house and carriage rugs. The preparation of lamb skins for winter coats has already been commenced in Lower Canada. It must be continued, for in proportion as the population of the world increases, the love of comfort becomes diffused, and civilization creates new wants, industry must supply the deficiency in the natural production of certain articles.

The reputation of French hats are universal; well, here we have specimens to suit every taste and condition, from the plumed hat of the general officer to the modest, crushed up felt of the commercial traveller; we have too, woman's head gear so fresh looking and coquettish, and ornaments in hair, plaits, combs, wigs, &c.

Next is a collection of French cottons by a number of exhibitors, among whom the manufacturers from the Rhine departments are distinguished, fine cotton fabrics, cotton sail cloths, glazed cottons, calicoes, tickings, muslins, cotton sheeting, unbleached and colored velvets, counterpanes, cotton fabrics in imitation of wool, linen and silk, figured cotton cloth for book-binding, prints, sewing cotton, &c. Next we have hair-work by Messrs. Constant and Lemonnier. Among the articles exhibited by the former we notice a net-work of serpents in the form of a crown, and among those of the latter a large picture five feet square, representing a landscape, and an eagle making a descent upon a teal's nest; next a collection of linens, table cloths, and damasked fabrics, among which a splendid cloth with designs representing bear hunting, scenes in the Polar regions, &c., stamped and embroidered stuffs, and muslins, and black and white point lace.

French book-work, including printing, engraving of all kinds, book-binding, geographical maps, maps in relief, in fact every description of article comprised under the terms book-work and stationery, is here represented by more than one hundred contributors over and above those we have already noticed. In the midst of this collection, in a class in which France holds the highest rank, we observe reproductions in lithograph of the works of the masters in painting, in

which not only the composition and drawing are effectually produced, but even the tone and style of the artist; as, for example, Decamp's works, in which you seem to observe that richness of color which is a characteristic of that eminent artist, and which gives him in certain pictures such a character for originality.

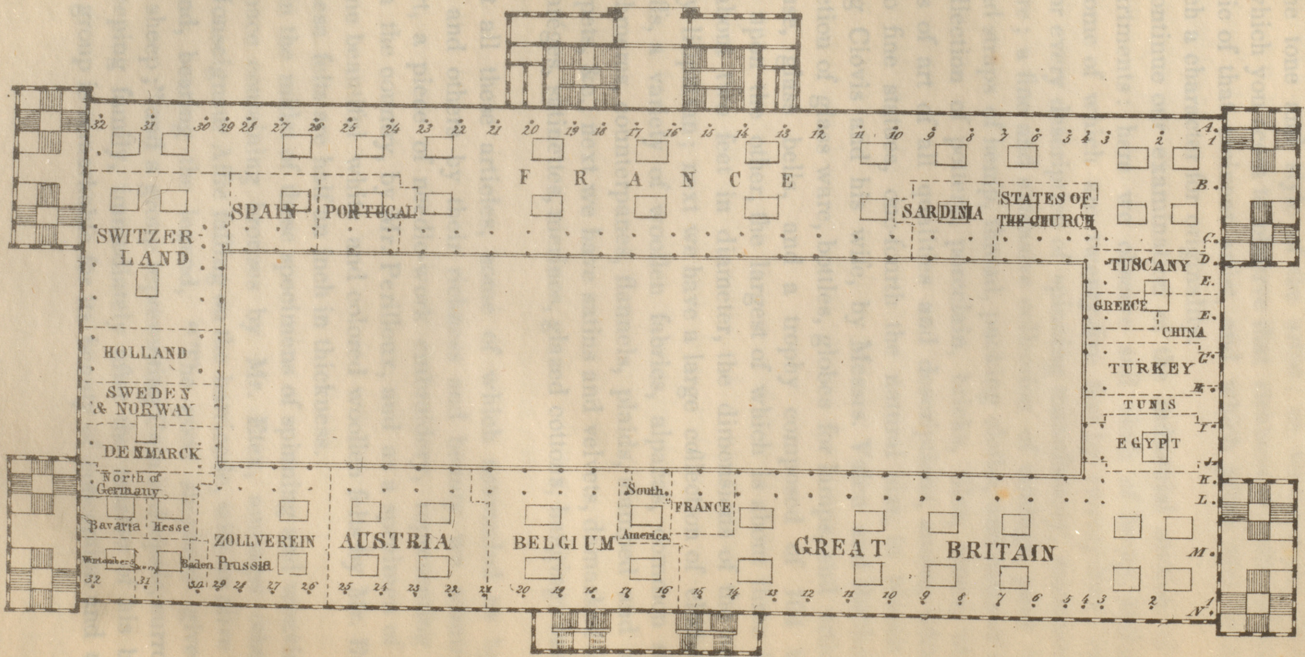
Let us continue our examination of the industrial section of these vast compartments: here we observe sail cloth of hemp, and artists' canvases, some of which are twenty-five feet by twenty-four; carding machines for every description of spinning manufactory, mattrasses and bed furniture; a fine and extensive collection of cordage, pack thread, bobbins, and straps of hemp, thread, packing cloths, and mats of hemp; a large collection of pottery, porcelain, bricks, tiles, vases, utensils, and objects of art of all qualities and descriptions, among which we remark two fine statues, one-fourth the natural size, in biscuit ware, representing Clovis and his wife, by Messrs. Valeu and Berthoud; a large collection of glass ware, bottles, globes for lamps, and articles of common use, glass bells, and a trophy composed of 104 bottles, placed one upon the other, the largest of which is about three feet in height by about two feet in diameter, the dimensions of the smallest being really liliputian; next we have a large collection of cloths of all colors, stuffs, a variety of woollen fabrics, alpacas, common shawls, French cashmeres, counterpanes, flannels, plaids, stamped and spotted fabrics, carpets, &c.; next we have satins and velvets, damasked fabrics, muslins, baréges, satinettes, merinos, glazed cottons, hangings and furniture stuffs.

Amongst all these articles, some of which astounded us by their cheapness, and others by their richness and beauty, we admire as a work of art, a piece of needle-work embroidery, representing sheep shearing in the country, by Mr. Perilleux, and as a specimen of manufacture some beautiful white and colored woollen felts by Mr. Bellion; some of these felts are half an inch in thickness.

Lastly, in the midst of these specimens of spinning and weaving, we notice a space containing bronzes by Mr. Etex, amongst others the statue of Monseigneur Affre falling on the barricade, with an olive branch in his hand, bearing the legend, "The good shepherd giveth his life for the sheep;" and a group representing Cain in despair, surrounded by his weeping family, immediately after the murder of his brother. The latter group is remarkable for its beauty of conception and composition.

MAIN BUILDING.

Plan of the Galleries.



VII.

THE GALLERIES.

We now proceed to inspect the galleries of the Palace; we reach them by the grand central staircase near the passage to the Panorama, on the south-eastern side of the building. Ascending the steps of polished stone, we remark all around the vast landing place the following objects, namely: large floor carpetings, by Mr. Braquanié, of Paris; a beautiful Italian white marble mantel piece, by Mr. Rossi, of Milan; a medallion, with the bust of the Empress Eugenie, over whose head a Cupid holds the Imperial Crown; two statues of angels ornament the two extremities of the console; pretty little colored window panes from Austria, large paintings on glass for church windows from Belgium, and lastly at the entrance to the gallery, the immense astronomical clock for the Cathedral of Besancon, which indicates not only the time but also the principal astronomical phenomena, lunar phases, eclipses, &c., in all 112 different indications; it was constructed by Mr. Bernardin, according to the calculations and under the superintendence of Cardinal Mathieu, Archbishop of Besancon.

Proceeding towards the right of the avenue which traverses the gallery to the balustrade, from which the whole of the nave may be seen, we see in the space set apart for the United States, a collection of pianos, church organs, harmoniums, accordeons, and other musical instruments, by French exhibitors, and attached to the balustrade a fine large clock, by Mr. Colin, of Paris; this beautiful instrument indicates by different bells and dials the hour in the different capital cities in the world, the lunar phases, and the day of the month; the time is transmitted to other dials in different parts of the building by means of electricity.

The whole of that part of the southern gallery which extends on our right from where we are now standing to the eastern extremity of the Palace, is devoted to the British Exhibition; here we have instruments and maps by the Surveying Department of Great Britain, consisting for the most part of beautiful theodolites and levels; acoustic instruments in great number and variety, by Mr. Rein; beautiful specimens of clock work, a large collection of optical, astronomical and scientific instruments, among which we remark delicate balances by Mr. Ortling, which are sensible of a weight of one thousandth part of a grain; they are mounted on agates and rubies; an electric apparatus for measuring the direction and intensity of the wind at sea, by Professor Smyth;

capillary preparations injected by Dr. Hett, of London, for the study of human and comparative anatomy; a large collection of maps, books, engravings of different kinds, models for drawing in plaster, and plates with subjects in anatomy, natural history, and other analagous subjects, for schools and libraries: amongst these we must remark particularly the magnificent geological chart of England, a collection of the different fruits of the Amygdalloid family, a collection of small cables, copper conductors for telegraphs, pretty reliefs carved in wood, among which we remark *The Procession of Neptune*, by Mr. Hall, and a group of dead game, composed of a woodcock, a snipe and a partridge, by another artist; statuettes in bronze, marble and other materials, in the midst of which we remark a group of *Cain and Abel*, by Mr. Carrier: Abel is represented dead; and Cain, with one hand on the altar, on which is the lamb which his brother had sacrificed to the Lord, seems to be meditating upon the enormity of his crime, the first murder, which spread desolation over the abodes of men.

Continuing, we see specimens of photography and daguerreotyping, and an apparatus for stereoscopic photography, exhibiting the picture either flat or in relief, according as we examine it either through one or two lenses; furniture and room decorations, consisting of fringes and embroidery, some of which, composed of velvet, embroidered with gold, are remarkable for their richness and beauty; an extensive collection of embroideries, lace, muslins and prints, chiefly from Nottingham; shawls, the most beautiful of which were from the Jewish house of Salomons, to which the recently elected Lord Mayor of London belongs. Next we have silks, woollen fabrics, linens, rich carpetings, velvets, various articles of clothing, gloves, hosiery, boots and shoes, &c., &c.; artificial flowers, toys and stationery, cases of instruments, brushes, specimens of printing and binding, and an envelope machine.

Having traversed the labyrinth of the avenues and compartments containing the objects we have just inspected, we arrive at the principal exhibition of English gold and silver smiths' work; many have contributed to this collection; Messrs. Hunt & Roskell, in their articles of jewellery, exhibit diamonds and precious stones, amounting in value to £50,000 sterling; the Goldsmith's Company of London exhibit a number of emblematic vases and candelabra, one of which represents the festival on the occasion of granting the privileges to the Company of Goldsmiths by Richard II.

This collection of plate is very numerous and of great richness; we particularly observe a shield of iron and silver representing Shakspeare, Milton and Newton, each surrounded with attributes, as difficult to divine as enigmas, the subject of the composition is described as follows:

Shakspeare seated on the vessel of immortality, floating on the river of life, and Apollo and Minerva shewing him the vices of human nature, personified by figures in torments, monsters, &c.; in spite of its intricacy it is a fine work, but the most beautiful specimen is one representing Jupiter hurling thunderbolts at the Titans, designed by Mr. Vechte, a French artist, employed in London by Hunt and Roskell, the successors to Storr and Mortimer; the shield of which I have before spoken, was designed by this artist. This collection is remarkable for its richness, a number of the groups being in solid silver.

We now arrive at the exhibition of the East India Company, who adopted the happy idea of exhibiting not only the remarkable manufactured productions of India, but also of exhibiting the characteristics of that wonderful country, and as it were transporting the visitor into the midst of the scenery in that strange land of civilization, causing our minds to recur to the Tales of the Thousand and one nights, and the enchanted shores and palaces of fairy land.

First we have pavilions painted in oriental style, containing Indian stuffs, superb cashmeres which are imitated in France, but which have never yet been equalled, various velvets and other fabrics of the richest colors, muslins embroidered with gold and silver, silk and cotton scarfs, gauzes ornamented with arabesques in gold, the whole incredibly transparent and light, a sun beam might sport and reflect itself on the gold threads of the *tenth tissue.* Next we have costumes made up of the above materials, embroidered slippers, Turkish slippers of gilded white leather, and caps of gold and silk, velvet cloaks for Indian Princes, arms, bows and arrows, muskets and pistols, sabres and daggers, lances, coats of mail, helmets, cuirasses of most fantastic form, and inconceivably rich in ornament, musical instruments, guitars with one or more strings, drums, tom-toms, flutes, chibouques and narguillis, toys, carriages the most curious in the world, small statuettes, figures representing Indian animals, the elephant, crocodile, serpents, monkeys, and the pretty little Hindoo cow, an object of worship on the shores of the Ganges.

In this exhibition there is something so original and so fabulous that you seem to be transported to another world, especially when you examine the representations of life in the East; first, there is an Indian village, or more properly speaking a bazaar in the country, consisting of an enclosure in the form of a parallelogram, made of bamboos, covered with thatch; in the court, herding together, are women, children, men, horses, cattle and elephants, on the roof of the house are troups of monkeys basking in the sun, or gambolling in a fantastic manner. Then we have the pavilion of an Indian Prince, containing ivory and ebony sofas, on mag-

nificent carpets, a cloth of green velvet spotted with gold covers the principal sofa, in front of which is a table with a chess-board, walking sticks of costly woods, narguillis glittering with crystal and gold, ivory, precious stones and amber shew their aristocratic bowls, in fact it is evident that the personage for whom all these objects are destined, must be deemed and believes himself to have been formed of other materials than mankind generally, for with us, in all our views of luxury, the entertainment of our friends is always one of our aims, whereas here, everything is destined for one single individual who has been condemned to suffer continually from indulgence, idleness and ennui. Here again we have another prince, who, finding his palace too warm, has taken up his abode in his tent. He sits listlessly on cushions smoking his chibouque, his courtiers stand around, slaves holding large fans stand in a circle around him, a medicant is in the act of advancing towards him, he must not give him anything himself, he must give instructions to an attendant, and remain as he is, folded in his own dignity, wrapped up in silk, velvet, and gold, and walking from his palace to his tent and from his tent to his palace. All this may appear amusing to you ; for my own part,—I am obliged to you,—but I would rather not be an eastern prince.

Here we have the car of Juggernaut, which moves along drawn by thousands of devotees, the car is in the form of a pyramid, and must be about thirty feet in height. Imagine to yourself every conceivable variety of arabesques and fantastic carving, the whole painted red, green, yellow, blue and white, and you will have some idea of the architecture of this car.

To conclude our inspection of this curious Indian collection, let us examine the models of pirogues, a climbing pole on a festival ground, some models of the Temple of Ambabi, and of the mosque of Ahinidebad, some specimens of printing in Hindostanee, some jewellery and some household utensils, and other articles in ordinary use.

Next to this collection is a compartment in which Australia exhibits specimens from her gold fields and of her other mineral wealth, specimens of her vegetable productions, and also some stuffed animals and birds, many of which are peculiar to that country.

Leaving the Indian and Australian collections we enter the compartments occupied by the articles sent from Egypt, whose viceroy just now is acting in so independent a manner towards the Sultan his suzerain. We observe in this collection a panorama of the Isthmus of Suez, just completed, by a French engineer, Mr. de Lesseps, preparatory to the construction of a canal between the two seas, articles of saddlery richly ornamented, oriental fabrics, embroideries, woollen, silk and cotton stuffs,

carpetings, grain, minerals, wines, sugars, articles in alabaster of remarkable beauty, and lastly, books printed in Arabic and Turkish.

Tunis displays some wove fabrics, sadlery, and clothing, and a beautiful pipe.

The Ottoman Empire occupies the next division, which is filled or nearly so, with stuffs, embroideries, carpets, shawls, scarfs, and a variety of woollen and silk fabrics; of the silks some are from a French establishment at Mount Lebanon; a collection of the current coins, pipes, chibouques, and narguillis, weapons of war, and military saddles, cutlery, and lastly, specimens of photography and drawing from Wallachia and Moldavia.

From China, incense vases and others in porcelain, scent bags, and japanned screens, iron-wood furniture carved and inlaid, shawls and other stuffs, and two beautiful large yellow vases of Chinese pocelain.

The little kingdom of Greece sends a collection of woollen and silk fabrics, cordage and leathers, articles of clothing and specimens of photography, the model of a Greek corvette, a collection of dried Greek flowers, and, lastly, a very pretty costume, and rich male attire spotted with gold.

In the next compartment occupied by Tuscany, whose principal exhibition is in the annexe, we remark a collection of very pretty furniture and some beautiful marqueterie work, specimens of fine Tuscan marble, mosaics in stone from Florence, pretty articles of stationery, candelabra, and vases of serpentine, bronzes, among which a copy of the Perseus, by Bellini is worthy of notice, porcelains from Florence, the well known and admired straw bonnets from Tuscany, a marble mantelpiece, specimens of silk and cotton thread, a collection of stuffs, some cordage, pottery, and locks, specimens of photography, alabaster and porphyry vases, beautiful imitations of ancient Italian delph called *majolica*, made to deceive connoisseurs. The compartments of the other Italian states, namely, the states of the Church and Sardinia, are contiguous to those we have just examined. It may be said that the kingdom of Naples abstained from exhibiting, and the few productions from that country are placed in the compartment of the states of the Church. The industrial section of the exhibition from the Roman states is placed in the annexe. In the section in which we now are, we observe, a large collection of those beautiful cameos, for which Rome is so renowned, a collection of mosaics of all sizes, among which is one representing the Roman Forum, by Mr. Galante. This magnificent work of art is nearly five feet in length and thirty inches in breadth, and is worth £1500. We also notice pottery made of the famous earth from Mount Janicula, coral jewellery, a beautiful model of Trajan's

column in bronze, a machine for cutting out cloth for coats, artistic designs and ornaments in marble, stucco and Greek antique marble, worsted hangings in imitation of Gobelin's, specimens of silk, cloths, and articles of clothing, artificial flowers in wax and muslin, beautiful photographs of the monuments of ancient and modern Rome, different kinds of furniture, and, lastly, a portrait in mosaic of the Emperor Napoleon I.

Sardinia exhibits woollen, linen, silk and cotton fabrics, embroidered fabrics worthy of notice, leathers, beautiful lithographs, wax fruits, a fine collection of specimens of clock making, musical instruments, surgical instruments, bookbinding, stuffed birds, mosaics in wood, some handsome furniture, fancy articles for smokers, a plaster group of Napoleon I and his son, and a patch-work quilt, similar to those frequently seen in the country, in Canada.

Nearly the whole of the gallery on the north side, which we have just entered, is filled with French productions, which we shall cursorily examine, for they are so numerous that we should never come to an end were we to examine them in detail; we have already, in the nave and in the lower galleries, examined in detail, objects for the most part similar, we shall therefore proceed by groups without following the labyrinth of pavilions and compartments.

The entire front of the gallery looking immediately upon the nave, is occupied by a suit of magnificent pavilions containing jewellery of all kinds to the value of many thousands of pounds; gold, silver, diamonds, pearls, rubies, topazes, emeralds, in fact all the precious metals and stones, of exquisite workmanship, and arranged with the purest taste, attract the gaze of visitors, who are astounded at the wealth displayed; some of the articles in this superb collection of the so world renowned jewellery of France, merit special mention, on account of their artistic beauties, for as regards richness and brilliancy it would be diffcult to make a selection; first we have an ornamented sword with a steel hilt by Mr. Henry, a table of silver and mosaic by Mr. Farry, a pin with a figure of the Virgin by Mr. Mellerio, lastly, the model of a cup in jasper of one single piece with figures and statuettes in *repoussé* gold and enamel, representing Theseus and Andromeda, this *bijou* is said to be worth £4000.

If we proceed from the balustrade, directly to the great central staircase, by which an entrance is gained to the gallery on this side, and which as it were, divides the gallery into two, we observe in the corridors at the entrance to the gallery, a collection of beautiful carpets by the most celebrated French makers, among which we must not forget those of Aubusson, a gigantic crystal candelabrum of great beauty from the re-

nowned factory of Baccarat, and a pier glass from St. Gobain, 17 ft. by 5 with a frame worthy of its beauty.

Next we remark, contained in a number of beautiful pavilions, and occupying different parts of the gallery, a large plate glass from Montlucon, silks of the inimitable Lyons manufacture, a variety of fabrics in silk, wool, and linen, embroideries, laces, muslins, stuffs, worked with gold and silver, points, &c.; amidst all these varieties of luxuries replete with taste may be distinguished the manufactures of Lyons, Paris, and St. Etienne, and in laces and embroideries, Valenciennes, Cambrai, Amiens, Nîmes, Mulhouse, Ronen, Nancy, Tarrare; next we have exhibited all the processes in the production and manufacture of silk from the gathering of the cocoon, up to the richest and most delicate fabric.

Nearly in the middle of this gallery, is the apartment prepared for the Empress, the principal ornaments in which consist of tapestry hangings, made in the reign of Louis XIV, by the young ladies of St. Cyr under the direction of Madame de Maintenon, a pier glass in the Louis XV style, made in London, furniture of magnificent Parisian cabinet work, silk hangings and the inkstand used by Napoleon I at St. Hélène.

After the French compartments, we have the Portuguese, Spanish and Swiss compartments.

In the Portuguese exhibition we remark a collection of wood for cabinet making, a collection of specimens of marbles, Portuguese tobaccos, a variety of fabrics, particularly some light silk stuffs, embroideries, mats, and other articles of plaited straw, woods and other substances, some paper made of aloes, porcelain, admirable imitations of flowers and feathers, and, lastly, a colossal porcelain vase of great beauty.

Spain exhibits a fine collection of stuffs and wove goods, porcelain, delf and pottery, beautiful embroideries, gold and silver plate, Church ornaments, medallions modeled in wax, plaster bas-reliefs, fire-arms, pianos, furniture, and photographs. The distinguishing quality of the Spanish exhibition is the combination of cheapness and the excellence and good taste of the articles; here it is evident we are dealing with a nation amongst whose people, the principles of art are generally diffused.

Switzerland demands special notice for her embroideries in needle-work, her reliefs and groups carved in wood, for which she is so justly celebrated, various woollen, silk, cotton, and linen fabrics, cutlery, musical boxes, a fine collection illustrating the Swiss manufacture, *par excellence*, viz., watchmaking, a superb oak *prie-Dieu*, some photographs, and, lastly, some embroideries on cloth and plaited straw.

In traversing the Swiss Department we have passed one of the pavilions on the staircase leading to the gallery; in the vicinity of the staircase are exhibited a stuffed lion, the skin of which was furnished by the celebrated Lieutenant Gerard, the lion slayer, and some specimens of glass staining, one of which represents a scene entitled, *The education of the Blessed Virgin.*

We now reach the cross gallery at the western extremity of the building which contains the exhibition by Holland, Sweden and Denmark, and a part of that of the German states.

On arriving at the compartment of Holland, we have got through the examination of about three-fourths of the galleries. The principal objects in the Dutch exhibition contained in this department have more or less reference to navigation; we have models of merchant and war vessels, a model of a flat bottomed fishing boat, models of the celebrated dykes, a model for the construction of ship's masts of iron, scientific instruments, compasses, chronometers, sextants, &c.; after these we have collections of engravings, letter press, and bookbinding, a fine collection of natural loadstones, glassware, and fancy articles, various fabrics, among which we remark some fine large carpetings, and counterpanes, and other household articles, next a collection of utensils, furniture, arms, and other fancy articles from the Island of Jara.

In the next compartment, Sweden and Norway exhibit a collection of fabrics, among which we notice some fine linens, a collection of scientific instruments, and fine surgical instruments, a collection of sculpture and ornaments and furniture in carved wood, various articles of clothing and decoration, specimens of bookbinding, furniture of different kinds, gold and silver plate, a table on which stands a large porphyry vase, some beautiful furs, musical instruments, fancy articles of birch bark, models of public works, and, lastly, some perfumery.

Denmark exhibits in this part of the building, a collection of furs; the productions of its woollen and cotton manufactures; specimens of Danish porcelain from Copenhagen, some of which are works of art copied from the works of the celebrated Danish sculptor, Thorwaldsen, the author of the famous statues of *Jesus and the twelve Apostles*; musical instruments, particularly pianos, collections of stuffed animals and birds; some furniture, among which is a bookcase of carved wood, mathematical nautical instruments, a model of a pilot boat, articles of clothing, and, lastly, a beautiful mechanical compositor.

Among the fabrics, models of vessels, embroideries, earthenware, cabinetware, marquetterie work, and other articles sent by the free town of Hamburg, we notice a collossal barometer, the style of execution of which, does honor to its maker, Mr. Krüss. Entering the part of the

galleries assigned to the German states, we perceive around the passages leading to it, specimens of Prussian stained glass, and a pavilion containing the celebrated Eaux de Cologne, by Mr. Jean Marie Farina.

In the first of these compartments the different German states exhibit a variety of fancy stuffs embroidered, stamped and damasked, embroideries, toilet articles, specimens of engraving, superb specimens of photography, a collection of playthings and fancy articles. Among the numerous articles of bronze and electrotype here exhibited, we remark a magnificent bas-relief of the picture by Gendron *La Danse des Willis*, executed in electrotype by Mr. Kress of the Grand Duchy of Hesse.

Next comes Prussia with an exhibition of various fabrics differing in price, among which we notice particularly Berlin carpetings and wools, and Utrecht velvets, numerous and varied specimens of stationery, engraving, bookbinding, and books, architectural designs and collections of archæological drawings, albums, maps in relief, photographs; and, lastly, a collection of skins and furs.

From the Prussian we pass to the Austrian collection which astonishes the visitor by its richness, and amid which we particularly admire the beautiful velvets of Vienna and of the Provinces of the Empire, every description of silk, linen, and woollen fabric rivalling the finest of their kind in the whole world, embroidered, spotted and damasked tissues, &c., specimens of silk and wool in the various stages of their preparation, national costumes, shawls and other toilet articles; a collection of hats and caps in which we remark the singular fashions in vogue in the different provinces, such as Hungary, Transylvania, and Wallachia, a fine collection of carpetings, specimens of the beautiful Bohemian crystal ware, which was the first to compete with that of Venice, and, lastly, a magnificent organ completes the catalogue of the most remarkable objects in this beautiful section.

Belgium here, as on the ground floor, is next to Austria, she exhibits among other objects a collection of fancy carpetings, different kinds of embroidery, specimens of engraving and photography, musical instruments, and particularly some pianos from Brussels, ornaments of marble, such as mantel-pieces and frames, dresses and carpets of furs of different kinds, articles of jewellery and gold and silver plate, bronzes, fancy articles in great variety, a collection of biscuit ware and some articles in terra cotta.

We shall conclude our examination of the galleries and consequently of the Palais d'Industrie, by noticing the few articles from the Southern States of America and Central America. Let us observe the stuffed birds, the mats and carpets, and the natural productions of Guatemala and New Grenada, the collection of minerals from the Argentine Repub-

lic, the natural productions of Brazil, the collection of minerals, the tobaccos and other plants, the books and stationery, the tissues embroidered with gold, and lastly, the collection of birds and insects from Mexico.

VIII.

THE PANORAMA.

We now proceed to examine the annexe called the panorama, which immediately adjoins the Palace. The panorama is divided into two principal sections, the circuit and the central division, the whole is occupied by French exhibitors.

We shall first make the circuit of the building entering on the right. Here is assembled the most considerable collection of French furniture; the perfection at which French workmen have arrived in this branch is well known. This vast collection, which is composed almost exclusively of fancy furniture, is contributed by a host of exhibitors, the list of whose names it would take too long to give; let us then content ourselves with the examination of a few of the specimens which are worthy of special remark: a polished oak mantel-piece, ornamented with statuettes, by Mr. Roudillon, a frame of Sevres enamel and two large pannels, painted with arabesques; a book-case by Mr. Klein, of carved black walnut, and consisting of two distinct parts supported each by four pannels, the lower part is ornamented with busts of Dante and Virgil, and witb allegorical designs, emblematical of the arts, the whole is surmounted by a globe, supported by a figure of Atlas, the globe itself being surmounted by a figure of science seated on a couched lion: an immense side-board by Mr. Ribailler, adorned with statues of natural size of the four quarters of the world, and with a host of allegorical figures and bas-reliefs, the merit of the workmanship being a recompense for the strangeness of this encyclopediacal composition; an ebony sideboard with bronze ornaments, and a black walnut book case with bronze ornaments, by Mr. Barbédienne, who manufactures both bronzes and furniture; next to these we have bedsteads and other furniture; next an immense collection of implements and cutlery, the most beautiful and complete ever offered to public view; the next section contains musical instruments of French manufacture, wind, string, and percussion instruments; let us note the names of the justly celebrated makers, Pleyel, Blanchet, Debain, Pape, Alexandre, Darche, Boisselot, Hertz, and especially the firm of

Erard, who always rank at the head of this branch of industry, and will continue to do so, notwithstanding the death of the head of the firm, which took place during the exhibition. The chef d'œuvre exhibited by Erard is a grand piano in the style of Louis XV., decorated with bronzes and paintings *à la Wateau*; the total weight of the tension, the cords being of steel, is 44,000 pounds.

We now enter the central section of the panorama. Observe around this large circular compartment, the Gobelins and Beauvais tapestry, the large picture in wool representing *the family of Darius at the feet of Alexander; the Miraculous draught of Fishes*, after Raphael; *La Vierge aux poissons*, also after Raphael; *Christ laid in the Sepulchre*, after Caravache; *Christ at the Tomb*, after Champeigne; illustrations of the fables of Lafontaine, and furniture covering from Beauvais; porcelain vases and carpets, by Mr. Sallandrouze. Here are exhibited specimens of aluminum, the new metal recently discovered.

In the middle of the panorama a platform has been erected; on the lowest elevation are the Crown Jewels of France, contained in a magnificent pavilion, around which, an uninterrupted stream of visitors continually circulates. Let us stop to admire these jewels, in which the beauty of the workmanship, the precious metals and stones rival one another, let it suffice to say that the total value of the jewels is calculated at £1,800,000. Below and around the elevation on which the Crown jewels are placed, the platform is occupied by a collection of Sevres porcelain, and gold and silver plate, among which we particularly notice a large monumental vase, with figures representing the different nations of the earth, executed in commemoration of the Universal Exhibition of 1851, enamels representing the four Evangelists, statues in biscuit ware, table services, vases, and candelabra. Among the plate we particularly remark a service of 100 covers, executed for the Emperor by Mr. Christofle; the entire service is composed of 350 pieces, bearing the arms of the Napoleon dynasty, the principal piece is an epergne in the form of a temple, the cupola bearing the figure of France rewarding merit, it is surrounded by statues of religion, concord, power and justice; at the base of the cupola we see on one side the genius of agriculture on a car drawn by four oxen, and the other side the genius of war, on a car drawn by four war horses; let us also remark the models in Sevres porcelain of various ancient works. Proceeding by the gallery, let us direct our steps to the *annexe du bord de l'eau.*

In the gallery just referred to, is exhibited on one side, the greater part of the exhibition of French clock work, including clocks, watches, chronometers, and other scientific instruments; and on the other side are collections of natural history, plants, flowers, and fruits, methodically

arranged; collections of animals prepared for museums, and curious specimens of fossils, amongst others a plaster cast of the head and tusks of an antediluvian animal. At the entrance to the annexe, are exhibited wax models, the greater part of which are of beautiful workmanship.

Before entering the annexe, we shall briefly examine the area fenced in, which surrounds the panorama; here, in a number of pavilions and tents are contained a number of articles sufficient of themselves to form a magnificent provincial exhibition; all the articles contained in this section are of French exhibition. Let us note the principal objects; first of all we see ranged along the palisade, artistic groups in terra-cotta, destined for the decoration of gardens, blocks of artificial stone, which having been submitted to experiment, has been found to possess a force of adhesion superior to that of natural stone, statues and arbours of lead and zinc, a pretty little pleasure boat by the Seine boatmen; next we have a collection of agricultural implements, ploughs, rakes, thrashing machines, steam ploughs, mills, reaping machines, wine presses, harrows, and many others, five or six of which are from Belgium.

Here it is that under a cover France has exhibited her agricultural products, cereals, plants, and preserved fruits; among this collection we remark beautiful merino wools, French flax and hemp, silk cocoons, some very curious beehives, and specimens of pine for shipbuilding planted in the Landes which had attained a growth of 15 feet in the short period of four years.

Here, also, the Marquis de Bryas exhibits within a pretty rustic pavilion his admirable method of deep drainage by means of earthen ware pipes, and here are displayed beautiful specimens of French carriage building and wheel wright's work, and models of railway vans and carriages.

Let us now briefly examine the exhibition of cheap articles, which is called the *Galerie de l'économie domestique.* This gallery is exclusively devoted to articles of food, clothing and furniture. Amongst the cheap articles of food we observe preserved vegetables, Indian meal, and the various so called Italian pastes. In the fuel section we remark, pressed turf, and coal made from charcoal and cinder dust mixed with tar by means of an hydraulic press. English crockery at four shillings a dozen, and Belgian and French earthenware cups at one penny each; tent bedsteads for less than ten shillings; stockings from Nottingham at one shilling per doz; French buttons at one shilling, the lot composed of 1748 buttons; French clocks at eight shillings; in fact a host of articles wonderful for their low price, which however does not in every case constitute cheapness. As regards the success attained in this section,

France, Prussia, Austria, Great Britain and Belgium take the first rank.

Austria exhibits excellent clocks at wonderfully low rates. I forgot to mention that there was an organ suitable for a village church, the price of which was only £5. It seems that in France, a very fair organ may be had for £25.

IX.

ANNEXE DU BORD-DE-L'EAU.

We have only the annexe now to examine ; we enter this building at the east end, next to the Place de la Concorde, and before inspecting the articles on the ground floor, let us look at the contents of the galleries, which it will be better to examine first, as they do not extend the whole length of the building, but only about half way, terminating abruptly at the commencement of the exhibition of machinery in motion.

Ascending the stair case which leads to the right hand gallery on the north, we first notice a part of the exhibition of the English Colonies, including Ceylon and the Indian Archipelago ; we observe ivory, tortoise-shell, and metallic articles, made by the natives, cabinetware and fancy articles, preserved fruits and natural productions from the three natural kingdoms ; minerals, cereals, and prepared fruits, furs, and skins, and mattrasses and hammocks used by the natives.

The collection from Australia is composed for the most part of a variety of timber and articles made of the different kinds of woods, some stuffed animals, and furs ; a collection of minerals, particularly some specimens from the gold fields, vegetable productions, specimens of printing and bookbinding ; the articles sent from Van Dieman's Land and the Cape of Good Hope, are almost identical with the above.

The collection from New Zealand contains fetiches, instruments and utensils used by the natives, a collection of woods of the country, and specimens of a gum held in great repute, for the preparation of varnish. Here are placed a few specimens of English, Canadian and French productions.

The States of the Church here exhibit a part of their collection of ceramic manufactures, sands and carbonates for polishing metals, a fine block of rock alum, a collection of forest productions, agricultural productions, chemical productions, preserved fruits, edged tools, hemp productions, sail cloth, and sperm candles. Here, Sardinia, among other articles, exhibits a

fine collection of stone, marble, and other materials of the kind; a collection of minerals, earthenware, and agricultural and forest productions.

Norway exhibits some very curious articles of clothing, furs, carriages, household implements, specimens of paper and pulleys, a model of a new steering apparatus, and some planks of northern pine and fir.

The German States shew some mineral and agricultural productions, some iron manufactures, clothing, and specimens of paper, fire arms, and cutlery.

Prussia exhibits some natural productions and manufactured articles, among others some telegraphic cables, some curious surgical instruments, specimens of paper, and a collection of optical and philosophical instruments.

Austria has collected here a number of important articles, among others, a fine collection of iron and steel manufactures, implements, fire arms, cutlery, surgical instruments, &c, geological, geographical and hydrographical charts, models of buildings, and of boats; clocks, and optical and scientific instruments, agricultural productions and implements, and lastly, an immense voltaic pile for the production of electricity.

Here Belgium presents a fine collection of agricultural productions, prepared furs, gold and silver plate, and water proof clothing.

The rest of this gallery is occupied by France. Here are telescopes and nautical instruments, a diving bell, a level, and other engineering instruments, photographical apparatus, a large collection of mathematical, astronomical and philosophical instruments used in the sciences of observation, beautiful French parchments, surgical instruments in great variety and of beautiful workmanship, contrivances for the education of the blind, instructive games for children, surgical bandages, artificial anatomical preparations, stuffed birds, and a collection of agricultural productions of France and Algeria, and some French furniture.

To conclude our visit to the galleries, we traverse the building and ascending to the left gallery on the south, we proceed to the eastern extremity of the annexe, where we shall commence a rapid survey of the objects displayed on the principal floor.

The gallery west of the Seine contains a piano and furniture made of Algerian wood, next we have the exhibition from French Guiana, consisting of barks, woods and plants, the skins and plumage of animals and birds, agricultural productions, spices, dye-stuffs and fruits, weapons, mats, and other articles.

Next to this collection from Guiana, we have a few articles from French Oceanica, comprising sponges, and corals, cottons, tobacco, and aromatics, dyestuffs,oils, and native fabrics. Next, France displays

some alimentary preparations, and some India rubber cloths, and a fine and numerous collection of chemical productions, and perfumeries, among which we notice those coming from Provence.

Next comes Austria, with a very good collection of chemical preparations, particularly some celebrated salts and acids, specimens of various sugars, surgical instruments, and numerous orthopœdical contrivances; next we have a pretty collection of articles for draftsmen and artists, paper, colors and pencils.

Prussia exhibits some liqueurs, syrups, sugars, manufactured tobaccos, candles, and essences; and a fine collection of the celebrated Eau de Cologne.

The articles collected here by the different petty German States and Holland, are virtually of the same description as those we have just examined from Prussia. They all belong to the united Zollverein exhibition.

Next, we notice in succession the following articles: from France some church ornaments, and articles of clothing made in the deaf and dumb asylums of Paris and Bordeaux, transparencies for windows, and models of house roofs. From Tunis, some furs and skins, some agricultural productions, and dried fruits, articles of leather, and earthenware. From Spain, a fine collection of chemicals, some candles, tobaccos, corks, paper, and mineral productions, among them rock salt from Catalonia; and lastly, a collection of the famous Spanish cigarettes, the classic ornament of the *Majo*.

We stop to examine the beautiful collection of agricultural productions by the Board of Trade of London, comprising every production classified in order, the grain in the ear with the stem and the roots, preserved fruits and vegetables, plants and woods; also, wools and other animal products.

Proceeding, we observe the productions of the English Colonies in the Mediterranean; from the Islands in the Mexican Gulf, and from Guiana, consisting,—from Malta and the Ionian Islands, of coffee, sugar, woods, agricultural productions, prepared fruits, dried fish, and a few fabrics; stuffed birds, and specimens of engraving and typography from Jamaica; minerals, forest and agricultural productions, toilet articles and clothing, stuffs, and household articles, musical instruments, and specimens of photography from British Guiana; a fine collection, consisting chiefly of mineral productions, among which is plastic earth of good quality, about 111 specimens of the produce of the forests and the chase; we notice particularly the wood of the banana tree, and some fine bear skins; a large collection of agricultural produce, wheat, coffee, cotton, pepper, &c., and a variety of raw and refined sugars, banana

meal, rum, starch, gums and medicinal plants, cordage of various fibres, aboriginal articles of clothing, hammocks, and other furniture, native huts and implements.

Having inspected the galleries, we proceed through the whole length of the annexe, 4,000 feet, noticing on our passage those objects, among the thousands which seem most worthy of observation, or those at least which attract the largest share of attention, for there are objects here of the greatest interest which appear to remain forgotten, and which seem lost in this immense collection which is too vast altogether to admit of the study of its details. The first compartment at this extremity of the annexe belongs to England, it contains a vast collection of iron castings, balconies, furniture, artistic and decorative objects, and others by the Coalbrookdale Company, numerous collections of specimens of iron, and iron manufactures, from different parts of the United Kingdom, and a fine collection of saddlery by several contributors; the specimens composing it are very beautiful; a collection of leathers of various qualities and variously prepared, a fine collection of English coal and coke arranged according to their degrees of utility; a vast collection of soaps of different kinds, and specimens of essences and various chemical preparations.

We now come to the agricultural implements, or implements connected with agriculture, exhibited by Great Britain; the principal of which are a numerous collection of ploughs of different forms and dimensions, harrows, drills, horse hoes, thrashing machines, and reaping machines, horse rakes, portable steam engines, and lastly, a tile machine for making earthen ware tiles for drainage, around which, a crowd is always gathered to examine it in operation.

From the English Department we pass to the Canadian Compartment, which is the only place in the annexe which is inclosed in a similar manner to the large compartments in the Palace. Nearly all the articles from Canada are collected in this compartment with the exception of the machines in motion, to the number of 12, some agricultural implements, and a few articles placed in one of the galleries of the annexe immediately above where we are now standing.

CANADIAN COMPARTMENT.

The visitor upon entering the Canadian section, which is bounded at the two extremities by pavilions in which are arranged the objects of small dimensions, or of delicate texture, is at once struck with the appearance of the trophy of Canadian timber which occupies the centre of the compartment. This trophy which is nearly 60 feet in height, upon an octagonal base 14 feet in diameter is composed of three stories

surmounted by a spire, the top of which is ornamented with a beaver, the emblem of Canada. A winding stair case in the interior leads to the galleries on the different stories, the highest of which forms the prominent feature of all the trophies in the annexe. From this gallery the view of the building is really magnificent; this extensive edifice nearly 4000 feet in length, presents itself to the gaze of the visitor in all its varied aspects, with its numberless decorations and variety of colors, the fairy like confusion of all the objects displayed on the ground floor and in the galleries, and the iron and crystal vault of the immense industrial caravanserai. The complete view of the annexe, the aerial and indefinable prospect renders this gallery one of the most curious points of the Exhibition of 1855.

The Canadian trophy, so beautiful for its picturesque form, is not only a pavilion of luxury, but also an exhibition of articles of the second class, that is to say, of the produce of the forests, composed of the contributions of more than thirty exhibitors; it is constructed with the woods of Canada, and contains 64 varieties and more than 200 specimens, which are principally in the form of the boards and planks of commerce; some of these are more than one yard wide, by nearly four in length. To these woods are added manufactured articles more or less intimately connected with lumbering, wooden doors and windows, blinds, boxes, casks and barrels, oars, wooden shovels, handles of axes and other tools, hoops, beautiful specimens of veneering in birds'-eye maple, splendid furs and several other articles, all these stand gracefully out from draperies of imperial purple. At the foot of the trophy are seen enormous disks of wood, formed by transverse sections of trees covered with their bark, and intended to shew the texture of the different species.

Let us take a short review of the geographical arrangement of the saloon which engages our attention. We have already said that the two extremities are bounded by glass cases, the spaces between which give access into the interior, which is divided into eight parallel zones, extending in the direction of the length of the annexe. Let us notice the general arrangement of the contents of each zone, beginning with that which is bounded by the wall on the north-east side, nearest to Cours la Reine. Here we have the numerous mineral and metallurgic products, including a beautiful geological map, a large topographical map, and all kinds of building materials.

The second zone contains agricultural produce in its rough state, and the third the same produce manufactured ready for commerce, together with the products of the chase and the oil furnished by the fisheries.

Then comes the beautiful model of the Victoria Bridge, which excites the admiration of so many spectators, by the mere perfection of its

execution, but still more by the idea which it gives of that gigantic enterprise, which, thanks to the different documents published at Paris, is now known to all the world, as well as many other things before unknown concerning our beautiful country.

Crossing the centre of the saloon, we see, on each side of the trophy, the two beautiful carriages of Canadian manufacture which have been so much praised, and the two fire engines which are so remarkable in every respect. The fifth zone is formed of models of canals, bridges and public edifices. In the sixth zone we see different instruments, and especially manufactured metals, and in the seventh a rather large exhibition of furniture and a piano.

Lastly, leaning against the southern portion of the walls of the building, are specimens of paintings, engravings, and photography, collections of birds and stuffed animals, specimens of cordage, and of prepared and dressed leather.

Let us now cast a glance on the glass cases which form the line of separation between the Canadian section and those adjoining. They are five in number, at each extremity. Those of the western extremity contain, crossing from north to south, the first, preserved meats, salted and smoked tongues, hams, &c.; the second, straw and hay hats, samples of book binding, particular preparations of porpoise, caribou and moose skins, and a great many other articles; the third, stuffs, and various fabrics; the fourth, embroidered articles, lace work, and wearing apparel; the fifth, Indian curiosities and fancy work, of such taste and richness as to surprise every body who saw them.

The glass cases at the eastern extremity, crossing from south to north, contain: the first, beautiful furs, martin, mink, otter, beaver, fox, and many other kinds, which it is really comfortable only to look at; the second, a collection of different kinds of shoes and boots; the fourth, jewellery and articles belonging to the toilet; and the fifth, medicinal plants and those used in dyeing, pharmaceutical extracts and chemical preparations.

Still advancing in the annexe, immediately adjoining the Canadian Exhibition is one of the American divisions, which, like all the others, is almost entirely occupied by France. The United States exhibit here, only some reaping machines, one of which appears to be the best of all that were exhibited, thrashing machines, and a few other agricultural implements. France has occupied this American compartment by a collection which offers one of the most important features of the whole exhibition. This collection is a splendid illustration of its civil and military genius, and contains models representing the building, accommodations, and arrangements of men-of-war of every description, and above all, of those steam batteries, the use of which is so new, so bold

and so altogether French ; illustrations of the launching of ships and of the formation of stocks ; models of pilot, fishing and racing boats ; models of merchant vessels, and various apparatus for rescuing shipwrecked persons and property ; models of public works, temporary and permanent booms for rivers ; models of the construction of harbours, bridges, viaducts, aqueducts, tunnels, models of scaffolding for house building ; a beautiful model of a light house, shewing a perpendicular section of the interior ; a model of the harbor of Calais, and a map in relief of the harbour of Marseilles. What distinguishes all the productions of French genius is their solid and durable appearance, and their monumental aspect.

Tuscany has a pleasing exhibition here, composed principally of a collection of minerals, which are very remarkable in every respect ; a beautiful collection of building timber, and cabinet work ; a collection of bread-stuffs, plants, and roots, admirably arranged ; very fine specimens of wool, leather and other animal productions ; and specimens of the beautiful Tuscan straw which is so celebrated.

The States of the Church exhibit here, minerals, productions of the forest ; breadstuffs and other agricultural produce, and some agricultural implements ; amongst which is an ingenious harrow, intended to be adapted to the celebrated French plough of Dombasle.

Spain exhibits a collection of minerals, and some beautiful specimens of marble ; a collection of woods, comprising about 600 different species, together with the leaves, fruit, roots, bark, sections to shew the grain and the charcoal and ashes which they produce, this collection is the most beautiful of its kind ; breadstuffs and other agricultural produce ; wines, and superb oil ; tools of various kinds, and especially the tools which pertain to wood craft ; a collection of cordage ; and lastly, a beautiful collection of merino and other wools of those magnificent flocks of Spain which have obtained such a world wide renown.

Portugal exhibits produce of various kinds, amongst others, minerals ; different sorts of wood and corks ; agricultural implements and produce, cordage, and earthenware vessels.

The Kingdom of Sardinia exhibits a collection of substances belonging to the mineral kingdom, among which are the beautiful marbles for which the quarries of Piedmont are so celebrated ; woods and agricultural produce ; and several models of various machines, amongst others the plan of a locomotive designed to overcome steeper inclines than our present locomotives are capable of surmounting.

Turkey shews a fine collection of agricultural produce, particularly of breadstuffs, preserved fruits, and tobacco ; there are also specimens of

silk and skins of birds and animals, amongst which are tiger and ostrich skins.

Greece, which is here placed in the neighbourhood of her ancient enemy, presents a pretty, though not very large collection; there are plastic earth, and beautiful Grecian marbles, porphyry, agate from Mount Taygetus; *Rosso antico;* cipolin marble; the black marbles of Mantinea; the alabaster of Psythalia, &c.; a fine collection consisting of 77 varieties of woods from Achaia and Elidus; agricultural produce, amongst other things, preserved and dried fruits, and the celebrated beeswax of the mountains of Greece.

In the midst of these foreign productions, there is a collection of French leather which is universally celebrated.

Switzerland, in addition to productions similar to those of the countries we have already enumerated, exhibits a little pavilion containing counterpanes embroidered with needlework, together with other productions of that kind executed in an asylum for children; articles of furniture; machines of various sorts, and a beautiful plan in relief of the environs of the celebrated landscape of the Lake of the Four Cantons.

Holland next presents itself with its specimens of mineral, agricultural and forest productions, and excites particular attention by a collection of articles pertaining to shipping; and by an exhibition of cordage, and of the productions of its Colonies of Java and Sumatra: consisting principally of sugar, coffee, opium, indigo, cotton and oils, the whole arranged in a trophy, surmounted by the celebrated panther of Java, stuffed, in the act of springing and bearing in her mouth a young deer just caught.

Denmark exhibits a collection of minerals, woods and agricultural produce, amongst which are some beautiful wools; chemical preparations and stearine; then agricultural implements, amongst them a plough and a harrow for a single horse, and the model of a nailmaking machine, which, it is said, is capable of manufacturing 5,000 nails per hour.

Amongst various manufactured articles, the productions of the Hanseatic towns, is a beautiful carriage from Hamburg, and a rather singular production, consisting of cigars, manufactured from a paper which is made with stalks and refuse of tobacco, thus preventing waste.

Here Sweden has collected the greatest part of her exhibition. The principal articles are minerals, particularly samples of her celebrated iron, in the state of ore and castings, in the manufactured state, particularly as cable chains, anchors, and other articles connected with ships; as steel, accompanied by specimens of lock making, and tools, particularly of tools used in mining, and farming implements. Then comes a collection of woods, comprising about twenty varieties, together with an instrument for measuring trees, and specimens of pitch and tar:

a collection of agricultural produce, breadstuffs, seeds and undressed wools; of the sledges and furs of the north; leather and stuffed birds.

Then come the German States of Baden, Bavaria, Wurtemburg and Hesse, whose united collection is particularly remarkable, (besides the articles exhibited here by all the States) for tobacco, leather, paper, tools and instruments assembled in the form of a trophy; soaps, furs millstones, candles, chemical and distilled preparations, and for fire engines.

Prussia exhibits splendid specimens of the products of her iron and copper mines, and of the tools used by the miners; in the midst of the nave is placed, on an immense platform, a vast apparatus for distilling, comprising five great copper cauldrons; to the mineralogical collection of Prussia is added a fine geological map, the bust of Humboldt, and cast statuettes of the twelve apostles, one-fifth of the size of life; several bells of various sizes, in cast steel, are ranged in the midst of the Prussian division, they are of magnificent tone, the largest weighs nearly 6,000 pounds, and is worth £440 of our Canadian money; this exhibition is completed by articles of the kinds already enumerated in other countries, amongst which we specially remark the fine wools of Prussia, the finest in the world, together with those of Austria and Spain.

Austria has raised in the centre of this section of her exhibition a vast trophy of about twenty-five feet in height, made in the shape of a bottle, the exterior of which is formed by an immense quantity of bottles, containing Austrian wines; then comes a collection of minerals; a fine collection of woods, amongst which we observe some superb fir planks, prepared for the making of boxes; agricultural produce and farming implements; earthenware of various kinds; collections of soaps and stearine candles; then a collection of saddles and other articles of saddlery; and a multitude of other articles, amongst which we must not forget the fine wools and fleeces of Austria, whose provinces of Hungary, Silesia and Moravia sell the finest at very low prices.

The products of Belgium, which come next, are entirely of the same description with those already enumerated, excepting only, the splendid productions of the zinc mines, amongst which is remarkable, a fine block of calamine stone, and geological maps of great merit.

We now enter upon the domain of France, which here occupies about half the entire area of the annexe, that is to say, a space of about 2000 feet, or very nearly 10 acres in length, by nearly 75 feet, which is the entire width. The collection which now presents itself and which in importance is probably the most considerable in the whole exhibition, is the metallurgic collection, amongst which, together with a crowd of articles manufactured from iron, copper, steel, lead and zinc, cast,

moulded and laminated, we particularly admire the fountains, the stoves and furnaces, the mantel pieces, the tools of every description, the copper cauldrons, the vessels, the bells, the plates of iron, copper and steel, the sheet iron, iron and steel bars, the cable chains, rails for railroads, a fine collection of the tools, instruments and apparatus used in mining, a large collection of hardware, patterns of trip hammers, weighing 16,000 pounds, and lastly, specimens of large and small pieces of cast and wrought iron.

Then comes a collection of charcoal and other fuel produced in France, and belonging to this class is a splendid trophy, representing with the most minute exactness, a portion of the mines of Anzin, the method of working them, the tenth of the natural size; there we see the geological strata of the soil, the shafts now being worked with miners at work, the machinery employed in the transport and extraction of the coal, in fact, everything connected with the underground labor of these poor miners.

Close to the articles just enumerated, we find, first, a large and beautiful collection of watches, clocks, and instruments pertaining to astronomy and the exact arts, photographic, distilling and other apparatus, chemical preparations and the instruments for preparing them, a collection of scales, marbles and other mineral productions; then a collection of articles of perfumery, and above all we must not forget the fine collection of preparations of human and comparative anatomy, contributed by Doctor Auzoux.

Here are displayed the productions of some of the French colonies; Martinique, among other minerals, exhibits a volcanic stone, used for filtering water; cabinet-maker's woods and dye stuffs, bees-wax, honey, tobacco, manioc, liqueurs, and Caribbean vessels; Guadaloupe exhibits principally, coffee, cocoa, vanilla, cassia, cottons, cochineal, dried fruits and liquors, and hammocks made from the fibres of the *pita* tree. The Islands of Bourbon and Réunion contribute minerals, woods, particularly ebony, and indigenous productions consisting chiefly of spices, oils and gums. From Pondicherry they have sent spices, dye-woods and different varieties of raw silks. Senegal and Gambia have contributed elephants' teeth, gum copal and other gums, caoutchouc, the natural productions, together with the arms, fabrics, dresses and vessels used by the inhabitants of these singular countries.

Algiers, beautiful already and full of promise, comes next after these smaller colonies. In the section of substances of the mineral kingdom, we must notice the splendid onyx; an agate, the transparency and brilliancy of which rendered it one of the most esteemed articles of Roman luxury; and in the fine collection of the woods of Algiers we cannot but admire that beautiful red bird's-eye cedar, and the Thuya wood, which, except in

color, greatly resembles the bird's-eye maple of Canada. The collection of agricultural products of Algiers has been formed into a trophy, in which the splendid grain is admirably displayed, among which the fine ripe wheat is most remarkable. Many specimens of cotton give magnificent promise of future greatness for Algiers in that manufacture. Amidst all this wealth of production, we find arms, ornaments, utensils and tissues of Arab manufacture; an illustration of the productive talent of that noble race who now dwell in tents, after having been lords of the halls of Grenada and the Alhambra.

We have now reached that point in the annexe where it is divided by a beautiful fountain, the basin of which is embellished with a gigantic aquatic plant of bronze of the natural colors. The leaves of the water lily are neither more verdant nor more flexible than these metallic leaves, its flowers are not whiter, nor its stamens more slender.

We are still in the French department, and have now reached that part of the annexe termed the machinery section, because nearly at this place commences that driving shaft which derives its motive power from mighty steam engines placed without the building, and which in its turn communicates it to hundreds of machines the parts of which were in all directions, in general motion, like a meeting of the Shakers, or dancing Dervishes. It will be recollected that, at the London Exhibition, the managers had provided for the working of the English machinery only, and that foreign exhibitors had no chance to compete with their English rivals. But here the motive power is supplied without limit, and gratuitously, to all nations and all exhibitors. Here are twelve Canadian machines in motion. The driving shaft here mentioned is not less than 1500 feet in length, and turns 100 times in a minute. All who require motive power can obtain it on a simple requisition: the wheel is fixed, the strap attached, and the machine is at once in motion!

Around the fountain above mentioned are exhibited vast cranes, for raising heavy weights, one of which can raise 72,000 lbs.

It would be an endless task, and would defeat the end which I have proposed to myself, to particularize each individual machine, which is here exhibited; I must therefore generalize.

France exhibits numerous locomotives, several of which are of colossal power, portable steam engines also, and many other engines and machines accessory to the use of steam; machines for boring the earth; grist and saw mills, machines for the working of metals and wood, for the kneading and moulding of plastic earths, for striking coins and medals, and for the manufacture of chocolate; looms for the fabrication of cashmere shawls, and other embroidered tissues; sewing machines; a circular machine for the mechanical performance of netting; an apparatus for the rapid preparation of coffee, which is almost miraculous in its effects; presses of all kinds, among them

a copying press, and one for the fabrication of cards; a machine for making envelopes; a machine to saw the hardest stone; one for cork cutting; another for washing bottles; a contrivance for making various articles of metal; models and apparatus of all kinds; mechanical reels for winding silk; and a host of machines for combing, carding, spinning and weaving cotton, wool, silk and linen; fire engines and pumps of all kinds and for various purposes.

Next after the exhibition of French machinery are those of Belgium, Austria, Prussia, Zollverein, England, Canada, the United States, Holland, Sweden and Norway. The five first mentioned countries exhibit specimens of the same machines as France, but in much smaller number; England the most; Canada, the United States and some others, have only a few machines, which will be mentioned hereafter.

In the Belgian collection we notice an iron stern-post and rudder for a vessel of 2000 tons, and a machine for composing and distributing type.

In the Austrian section are carriages, among which is that of the Mayor of Vienna, fire engines and a steam pump, locomotives, and a fine model of an hydraulic press.

In the joint compartment of Prussia and the Zollverein we find, besides such articles as the above, fire engines, a book binder's press, and carriages.

England exhibits, amidst numerous articles of the classes mentioned above, many of them very remarkable, cotton looms, several beautiful carriages, fire engines, a pump acting by centrifugal power, a testing machine for chain cables, and a model of the various parts of the ship of 23,000 tons, which is now building in London, under the direction of Mr. Brunel.

Here Canada exhibits planing, morticing and boring machines, work-benches and turning-lathes, and finally, a nail-cutting machine.

The United States exhibit a few steam engines, a machine for making screw nuts at one stroke, one for cleaning rags, pumps of various kinds, and a few other machines or elements of mechanism.

Among steam and other engines from the North of Europe, we must not omit to notice a steam engine for a screw steamer, from the manufactory of *Motala* in Sweden, which involves a new principle in the manner of its adaptation.

We here terminate our pilgrimage through these vast and numerous halls, the receptacles of the Universal Exhibition of Paris in 1855. This great scene of peaceful rivalry was closed on Thursday, 15th November, by the Emperor, with Roman pomp and magnificence.

THIRD SERIES.

STUDIES OF THE CLASSES.

Before I proceed to a cursory review of the twenty-eight classes of the Exhibition which composed its industrial section, together with the 31st class comprising the cheap articles, it is proper that I should make a rapid survey of the Canadian Department, so far as such a survey may be available to lead us to profit by examples and comparisons; I shall accordingly say a few words concerning the Canadian part of the Exhibition in respect of its practical uses, before I proceed to examine the several classes of productions.

I.

CANADIAN SECTION COMPARED.

In the first class, embracing all that relates to the extraction of mineral substances, and to the minerals themselves, we were among the last, and far behind most countries, in regard to metallurgical operations, for the very simple reason that we are deficient in the population and capital which carry on, and still more deficient in the men of science, who in France, England, Austria, Prussia, Belgium and other countries direct and enlighten, the labors of the mine. But if we proceed to an examination of the minerals in their natural state, our section at once assumed the first rank, and no country was in a condition to compete with us for a moment, either in the aggregate or the details of the department. The class of Canadian minerals was the most complete and had the advantages of displaying at a glance to the learned observer the geological configuration of the country, with reference to the industrial results which it may yield. For this success, which is a mere repetition of that obtained at London in 1851, Canada is indebted entirely to the geological commissioners; and this shews to demonstration, the necessity of continuing the labors of that commission on a more liberal scale. We possess in the bosom of the earth the untouched riches, which in England have been the main element of industrial and commercial greatness; but the conditions of progress towards

that greatness, are the light of science, and extensive enterprise. Mining operations cannot be profitably conducted on a small scale.

When we reflect that the iron which abounds in Canada is nearly of the same quality as that of Sweden, that it is found in places, surrounded by immense forests, and that, we have at hand the stone, sand, and other matters which are necessary for the smelting, moulding and casting of the metal, we may well wonder that every year we import from England, Sweden and the United States manufactured iron to the amount of more than £1,000,000. But, we must again observe, success attends such enterprises, only when undertaken on a grand scale, whatever the abundance of the raw material. The working of an iron mine is not for limited means, nor to be carried on on a petty scale. A cheap market must be a full market. In Europe blast furnaces are now built, capable of smelting 80,000 lbs. per diem. The want of coke in Canada, be it observed, does not oppose an obstacle to the successful prosecution of iron-works. Ours is a country of rich forests 270,000 square miles in extent. Sweden smelts her iron with charcoal only, and sells it to England for a paying price; the English convert it into steel and send it to other countries. Other European countries use charcoal, notwithstanding the general scarcity and dearness of wood in Europe.

Examining the different articles of cast-iron, which are exhibited in the annexe by the water-side, and comparing them with similar articles sent from Canada, we are impressed with a feeling of their superiority, not in the quality of the material, but, in respect of taste and appropriateness of design. Most of the designs of such ornaments of our production are frightfully ugly, and generally speaking, the weight is preposterous. We are lavish of materials, not only needlessly but even injuriously, as affecting the excellence of the articles made. If we expended the value of the superfluous material in taste of design, we should produce cheaper and better articles.

The second class, embracing the products of the forest advanced us to the foremost rank, both as producers and as manufacturers. No country could compete with us in the show of woods, and particularly of the kinds used in ship-building, including in the estimate all the various species. In this class are included, moreover, all the products of the chase and the fisheries, in which departments the Gulf, and the vast territories of the Saguenay and the North-west, place us beyond competition if not as producers, at least as proprietors of the finest field for production, in the whole world.

In utilitarian respects, it is plain that the Canadian department of the Exhibition was foremost in the class, now under consideration. A few

remarks on the mode of getting out the timber, as bearing on the subsequent application of it in the mechanic arts, will not be out of place.

In lumbering, as the making of timber is termed in Canada, just that amount of intelligence is brought into action, which is required for the squaring of the logs, and the sawing of them into the planks of commerce. None of that skill of woodcraft is exercised which turns to the best and most profitable account the various species, by attending to their several degrees of adaptation to the mechanic arts, and to the preparation to be expended on them to make them fit for market. As before observed, two things only are known, square timber and the plank three inches thick. A more recondite study of the application of timber to the mechanic arts, would instruct us in the fact, that there are conditions of length, girth and diameter required in those arts, by the influence of which, the square log of 50 feet long by 20 inches square, and plank of 12 feet by 10 inches lose their intrinsic value as compared with that higher value which is derivable from compliance with those conditions. How many are the trees left to rot in the forest because they are not reducible to a saw-log of the standard measure or a square stick of the required dimensions? which, trimmed to another form, would in other markets bear a greater value, though diminished in volume.

Of more than sixty principal species of timber which we possess, we make profitable use of scarcely ten, the rest are left to absolute decay. In Europe the birds-eye maple is considered as equal to the most precious of the woods used in cabinet-work. It is indeed hardly attainable, and when found, it bears a higher price than mahogany. From this cause arises the dearness of all the articles made of maple in the Parisian cabinet-work, the finest in the world.

The axe-handles, wooden shovels and other small articles of this kind attracted much admiration and some surprise at their cheapness, especially the doors, casements, and window-blinds. These branches of our industrial skill and labor will no doubt receive a great impulse, and a wider field of operation in a country abounding with material, where water-power is found at every point, and where all the conditions are found which are requisite for extensive enterprise, and production at a cheap rate.

These remarks will, I trust, be not altogether unprofitable. They are but hints, but they may serve to guide reflecting minds in the consideration of subjects which are highly important to all. From this Exhibition of 1855 will be derived a collection of facts, affording food for years of reflection and leading to conclusions, the bearing of which on the national prosperity of nations, and on the progress of the arts, can be as yet but little appreciated. The preliminary study of these, in the aggregate, must precede

that of the details. This is my object in these observations, and I pursue it as far as time and space permit me.

The class of Agricultural productions, properly so called, which is the third, taken as a whole, found us on a level with the foremost. Our grain won the admiration of all who saw it. I must not fail to notice the remark, generally made, that we neglect the cultivation of hemp, of flax, and of tobacco, which our soil is so well suited to produce in abundance and of excellent quality. These three articles, especially the last, may be made the source of immense profit. The demand for hemp is increasing in a ratio much greater than that of its production, and this independently of the occasional seasons of scarcity which occur in respect of all other natural productions. The vast increase of the shipping of all nations, has for many years past produced a scarcity of those articles in which hemp is required as a material. Those articles have now reached fabulous prices, prices which may, to a certain extent, interfere with the success of our ship-building, a pursuit so intimately connected with our prosperity.

In a description of the visits paid by Prince Napoleon to the Exhibition, we read " Canada makes a brilliant display of its productions: its specimens " of grain, fruit, flowers, and bread-stuffs of various kinds, attract the at- " tention and challenge the admiration of the world. The pains which the " Commissioners and delegates of Canada have taken, entitle them to the " praises which Prince Napoleon has more than once bestowed on their part " of the Exhibition."

Canada took its place therefore among those countries which acquired distinction, by the rarity, the beauty, and the importance of the produce of their soil. We were the very first in abundance and quality. Some countries excelled us in the classification of the substances which they exhibited, and a graduated arrangement was wanting in ours, which the Commissioners could by no means accomplish at the season at which they made their collection. I allude to the display of the ear with the stalk, shewing to the visitor the complete production of nature as it was gathered. The juries, and commissioners in general, attached great importance to these collections of plants, scientifically made, finding that they furnish valuable data for the study of the influence of climate and various modes of culture, as favoring the development of the whole plant, or certain of its parts. To sum up all in one word,—we stand before the world, at the Universal Exhibition, as a country eminently agricultural, and inferior to none in respect to the faculty of production.

Apart from the merit of excellence in quality, our display of grain and seeds possessed that of variety and an abundance of each kind. This latter circumstance enabled us to make exchanges: and the varieties which we thus acquired may put us in the way of making experiments, the results of

which may be important. Algeria, in particular, furnished us with some novelties which promise to be valuable.

We had but few articles in the fourth class, which consisted of mechanical inventions applied to manufactures; neither could we hope to be distinguished in this department in a comparison with European countries, except by our fire engines, a particular in which we have rivals, but no superiors. "Canada," Prince Napoleon observed, "distinguished itself in this class by two fire-engines."

Reference can be made, for the particulars of each class, to the recapitulation of the premiums awarded, which is annexed to this sketch.

In the fifth class—mechanics applied to locomotion and the means of transport—our contributions of products of the carriage builder and the saddler, bore favorable comparison, for their tastefulness and excellence, with articles of ordinary merit, notwithstanding the extraordinary number of exhibitors.

Having first recommended visitors to proceed to the annexe for the express purpose of examining the two Canadian vehicles, to which he assigns a prominent rank in the Exhibition, M. Tresca, the author of a work on the Exhibition, goes on to say, "these carriages are elegant in form, and "the iron-work, especially, is very carefully managed. They are creditable "to the taste of the builders. M. Clovis Leduc has, however, built his "'Americaine' with a head which has long since gone out of fashion, and "which diminishes its effect; and M. Edouard Gingras' carriage is hung too low, "and has too low wheels, a fault which disturbs the harmony of "parts which should exist in all carriages."

Our two clever builders will forgive the candor of these remarks. Our object is not to flatter, but to instruct and to encourage; and while they turn this criticism to profitable account, our mechanics may find consolation in the reflection, *that neither men nor carriages are faultless*, even at the Exhibition.

The sixth class concerns the mechanical powers applied to special purposes, and the materials used in manufactures. It was impossible for us to enter into serious competition in this class, considered in its fullest extent. We are, in the New World, far from the perfection which has been attained in France, England, and Belgium, in point of workmanship. I say in point of workmanship, because there are new American inventions, particularly in agricultural implements, in which the mechanic principle is incontestably superior. In this class, we did all that could be expected from us.

M. Tresca, of the *Conservatoire des Arts et Metiers*, whom we have before mentioned, notices Mr. Munro's planing machine, Mr. McLennon's morticing machine, to which the author awards the merit of a new principle in the

arrangement for working inside and outside at the same time, Mr. Rodden's trenail machine, and the planing machine and work-bench of the same gentleman. The last mentioned article elicited from the writer the following remark:—" This machine although not remarkable in any one of its details, " becomes so for the extreme simplicity of its mounting and fittings, its " small bulk, and its cheapness, the price being only £100."

We made no contribution to the seventh class, which embraced mechanism applied to the textile art. The same may be said respecting the eight, which relates to the exact arts, and comprises optical and mathematical instruments, clocks and watches, and apparatus for purposes of education; neither do we enter the lists in the ninth, which includes articles designed to economise light, heat and electricity: in this, however, we have our cooking stoves.

In the tenth class, relating to chemistry, dying, printing, paper making, book-binding, we contributed nothing which could be compared with similar production from European states, except in respect of the raw material, which, strictly speaking, belongs to other classes. The leather of the porpois, caribou, and moose skin, will very probably be the subject of a special article, in the report of the Jury.

In this part of the Exhibition we display some novelties in manufactures: such as the leathers above mentioned, vegetable oils, the products of particular species peculiar to Canada, a natural grey paint, furs dyed the natural colors, and paper made from the " immortelle " (*gnaphalium.*)

Our specimens of glue seemed to find favor; but in that prepared from fish a fault was remarked, which I shall mention in order that it may be avoided. It is the disagreeable odor of the fish, from which the European article is entirely freed. It appears that this smell depends altogether on the manner of preparation; and that, to avoid it, it is only necessary, after the product is once obtained, to avoid, in all subsequent stages of manipulation, contact with any utensil, tool, vessel, or even the hand of the manipulator, which has been touched by the raw material.

The eleventh class, that of prepared alimentary substances, found us, as producers of preserved fruits and meats, behind other exhibitors; but crowned us with great success in flour, ours being generally superior to any exhibited. Our cheese also received a premium.

" Canada and British Guiana do honor to the mother country," M. Tresca remarks in his book entitled, ' A Visit to the Exhibition,' " by their flour " and their starch."

Some of our natural productions of the province of pharmaceutics have shewn, by the notice which they have received, what profit might be expected from a complete botanical exploration of our country.

The thirteenth class, relating to ship-building and the military art, exhibited on the part of Canada, beautiful models of ocean and river steamers and apparatus for rescuing life and property from shipwrecked vessels. In these departments Quebec has produced models worthy of the first dock-yards in the world.

In the fourteenth class, that of civil architecture, although inferior in relation to the whole, and nearly unrepresented in respect of the monumental section of this department, one compartment attracted considerable notice by the display of models of our public works, and the exhibition of wood prepared for building purposes, as doors, window sashes and blinds. These became the objects of much notice at Paris on account of their cheapness. The general use of the cements of Quebec and Thorold cannot be too strongly recommended. Our building stone from Montreal and other places were also much admired, and the collection of marbles, exhibited by different persons, gave great éclat to this section of our department.

The fifteenth class contained articles of steel. In this department we exhibited nothing but edged tools, but they were so superior in temper and form to nearly all others, that our success was, comparatively, very great. When it is remembered that iron of a quality admirably adapted for the fabrication of this material is abundant in Canada, the reflection should lead our views to the production of an article so constantly in demand, so extensively used. Some countries import the kind of iron which is suitable for the manufacture of steel; but we possess in ourselves all the elements of this important source of wealth, and yet we import the steel of which we make these tools so superior in quality.

Our castings—entering into the sixteenth class—were not without merit; but yet we have much to learn in an art which has been carried to so high a degree of perfection in Europe, especially in tastefulness of design. In respect of quality, without attaining the perfection of some countries, our productions are on a par with those of other countries in general, and this we owe to the superior quality of our ore.

The seventeenth and eighteenth classes contained articles of jewelry, bronzes, glass and earthenware. In all these departments we are absolutely deficient, and we must long be satisfied with the production of articles of bare necessity, and with purchasing from Europe those articles of luxury which in France, England, Austria, Prussia and Belgium have attained incredible perfection.

In the manufacture of cotton, occupying the nineteenth class, we had nothing to shew.

In the twentieth class, that of woollen goods, we had many articles of cloths and cheap tissues, particularly of domestic manufacture. Articles of this kind were in a manner lost in the vast collection; but nevertheless

it was evident that our country cloths are, for durability and strength, considered to be admirably adapted to our climate. The mode of fabrication, at home, is moreover connected with our social condition, in as much as it militates against the centralization of the people, a state in which individuality of character, for which the people of Canada are now happily remarkable, is usually lost.

Nature had denied us the means of contributing anything to the twenty-first class, that of silks.

A few articles of the twenty-second class—that of fabrics of hemp and linen—and particularly a collection of very good cordages and specimens of linen spun by the hand, sufficed to make us regret that this department had not received from us all the attention which it deserved. This neglect is the less to be excused as the soil and climate of Canada are eminently suited to the culture of the material.

The twenty-third class comprised hosiery, tissues, gold and silver lace, embroidery and thread lace. Although we were not quite unprovided with articles in this department, which were above mediocrity, it is needless to remark that we could have no pretensions to excellence, compared with the aggregate of products of the kind ; yet we received for our collection a medal of the second class, and two pretty pieces of worsted work obtained honorable mention.

The manufactures connected with furnishing and the decorative art formed the twenty-fourth class, in which Canada numbered thirteen exhibitors ; the beauty of our woods, shewn in veneering and cabinet-work, particularly that of the curled maple, the novelty of the dressed skins embroidered with moose hair, and the curiosity excited by the sight of the rocking-chairs, unknown in Europe, produced an interest, and achieved a degree of success, difficult to be attained by ordinary means and efforts.

In the twenty-fifth class, which comprehended clothing and articles of fashion and elegant taste, we exhibited many beautiful objects, and maintained a highly successful competition. Our shoes and boots of porpoise and caribou leather, straw and hay hats, Indian curiosities, and embroidery, obtained the admiration of many, and marked distinction from the Jury, which will be particularized in the recapitulation of the premiums. Our misfortune was that European exhibitors sent collections, while we could send only a few articles : now, supposing his merit to be no more than equal, assuming even that it is inferior, an exhibitor of a collection has great advantages in the opinion of a Jury, who are not apt to care greatly for single articles. Our boots and shoes, fur coats, Indian curiosities, straw and hay hats, and embroidery in wool, and especially our clothes of country-cloth in the score of comfort and substantial value, attracted the notice of many visitors, and were certainly entitled to receive it.

The twenty-sixth class comprised articles connected with printing, photography and engraving. We are of course, in these matters, far behind, particularly in the evidences of taste ; and the success which we did attain was trifling, and the premium awarded only to stimulate and encourage. A still greater deficiency was to be expected in the next class, the twenty-seventh, being that of musical instruments. We have already seen that the twenty-eighth, twenty-ninth and thirtieth had reference to the fine arts, and that Canada exhibited nothing of the kind.

The reader will perceive that, in this rapid sketch, I have not entered into details, but merely generalized facts as they occurred, in the aggregate.

One thing gave a degree of comparative merit to our section, on which we heard many flattering remarks. This was the unity of idea, which had guided us in the collection. Our exhibition was complete, and fairly represented the industrial progress of the country as well as its natural resources.

I may conclude these remarks by observing, that our success in the classes of mineral wealth, forest products and agricultural produce, plainly points to the cultivation of the soil and the natural advantages, as the source of our future prosperity ; that in manufacturing, it is our interest to fabricate articles of which our metallurgical, woodland, and agricultural labors furnish the materials ; that in other branches of manufactures, we cannot for a long time hope to produce more than what is necessary for ordinary consumption and daily domestic service ; that for articles of taste, of perfection in art, and luxury we must resort to Europe to satisfy the wants created by advanced civilization ; that we are to remain convinced, that perfection is the work of time and the result of circumstances which cannot exist in a new country, a very growing population partly composed of Emigrants.

II.

Before entering in this section of our remarks, I must premise that the official classification of industrial products, recognized seven groups, composed, in the aggregate, of 27 classes. To them was added a supplementary class, termed that of domestic economy, comprizing cheap articles of food, clothing, furniture, and domestic furniture and dwellings.*

* Most of the technological and statistical information contained in these remarks was collected from works published on the spot, particularly from the *Account of the Visits of Prince Napoleon* from Mr. Tresca's work, and from articles in the journals *La Patrie* and *Le Monde Industriel ;* the remainder are the results of the visits and personal observation of the author—(J. C. Taché.)

FIRST GROUP.

NATURAL PRODUCTS.

Classes 1, 2, 3.

The countries which were most distinguished for the result of metallurgy, forming the first class of articles exhibited, are England, Belgium, France, Austria, Sweden, and Prussia. In respect to the quality of iron, as the element of the manufactures in question, the six countries take rank as follows: Sweden, Belgium, Prussia, Austria, France and England. In reference to the quantity produced and brought to market, whether for home consumption, or exportation, they are classed as follows: England, France, Austria, Prussia, Sweden and Belgium. This distribution of precedence is made irrespectively of population, or extent of territory, and as the result merely of statistical facts.*

The iron of Sweden, which is the best, is manufactured with charcoal. Its quality is not the effect of the particular mode of smelting, but is entirely owing to the quality of the ore and of the use of charcoal for fuel. It is well known that England receives this superior kind of iron from Sweden, for the purpose of manufacturing it into steel, for which purpose the inferior quality of iron, so abundant in England, is not suitable.

England has always held the first rank in the iron-trade, in respect of quantity. This is due, not only to the enterprising spirit of the country, but to the abundance of iron-ore and coal, contained in its bosom, and accompanied by all other matters useful and necessary in its production. England was the first, half a century ago, to use steam in the blast furnaces, to substitute the flatting mill for the hammer, and coke for charcoal.

The exhibitors who are most distinguished, belonging to the several countries mentioned, for the manufacture of iron, are: for England, the Bowling Iron Company, and the Rimney Iron Company; for France, Messrs. Chenot, the Montataire Iron Company, and the Company of *La Fonderie de Conches;* for Belgium, the Iron Works of Couillet and Selessin; for Austria the Comte d'Egger, and the administration of the Iron Works belonging to Prince Schwarzenberg; for Prussia, the manufactory of cast-steel of Essen and that of Bochum. It is not useless to make mention of those names, as a matter of general information.

France and Belgium are the two counties which are most distinguished for recent improvements.

* These remarks are altogether general in their indications; and are meant, rather to point out the necessity of enquiry, than to convey exact information.

Among the manufacturers and companies above mentioned, we notice M. Chenot, as making use of a peculiar method which gives great results. This metallurgist treats the ore with gas and obtains the metal in a spongy state. It is not yet ascertained how far this method may be applied on a large scale ; one thing is certain that it must have some useful result in one way or another.

The beautiful sheet iron of Austria is well known, it is as thin as delicate sheets of paper, and perfect in texture. This is of incredible beauty.

What lightness is found in the railings, the iron seats, &c., of the English manufacture of the Coalbrookdale Company in Shropshire, and how cheap also are the articles? The reason is plain, the purchaser has not to pay for a load of useless iron.

What elegance there is in the stoves and other articles of French manufacture, from the blast furnaces of the Marquis de Vogué of France? These designs of hunting and historical scenes are bas-reliefs of art, and the articles are not dearer on that account, because the material is not wasted ; and as to the casting, the beautiful costs no more than the most deformed piece that ever was moulded. This is now generally understood ; and in England where art is less perfect than in France and Belgium, the proprietors of founderies endeavor to procure artists from those two countries. A French sculptor, M. Geneste, is, at this moment, in the receipt of a salary of £2000 per annum from an English manufacturer.

The art of combining the useful with the agreeable is the climax of material progress. The study of the beautiful in art, is, to the intellectual man, what the study of truth is to his moral existence ; but we shall return to this subject when descanting on those classes which relate to the various uses of iron.

We now come to the second class which includes the results of the woodland occupations, of hunting, fishing, and some other pursuits, the object of which is the collection, not the culture of the productions of nature.

In scientific respects, and in respect of variety, Spain occupied the first place in the exhibition, of products of the forest. The admirable Spanish collection presented 600 different species, and derived immense importance from the idea of shewing, with specimens of the woods, those of the bark, leaves, flowers, and fruits of the trees and shrubs. The beautiful cork trees of Seville and Salamanca were particular objects of admiration. The Spanish exhibition had been prepared under the auspices of the Royal Forest Institutes of Villa Viciosa. It will be seen that individual energy and the spirit of association are the strongest springs of improvement in the arts of life, in respect of abundant pro-

duction and varied transactions, the singleness of action and enlarged intelligence of government are necessary to the success of those full and material courses of study on which depends the progress of the scientific vehicle of the arts, and the forward movement of mankind in the path of improvement. Thus in France, the skill of the planter has succeeded in producing, for exhibition in 1855, pines and oaks of which the seed was sown in 1850, in the *Landes* of St. Albin, and which now measure 12 feet in height, by a girth of 12 inches. As these reflexions have led us to France, it is fit that we should invite the attention of the studious in such matters to the injection of the lighter woods, from which process they acquire durability and several other qualities important from the uses to which they are applied. Something analagous to this is the new process exhibited by Sardinia for the staining of woods; the specimens exhibited were of beech.

Sweden exhibited a fine collection of oak, pine and beach for ship-building purposes, and Norway one consisting of planks of commerce combined in the form of a pyramid with great effect.

Austria was likewise distinguished for its exhibition of articles of the second class, and obtained the admiration of all, by a fine collection of thin boards of that celebrated Moravian fir which is in such request among musical instrument makers. In its qualities, this fir appears to bear a perfect resemblance to the large white fir of the lower St. Lawrence, of which no use is made in Canada, although it yields a very fine board.

Algeria, which with Canada stood on a par with the countries of the second rank, presented one of the finest collections, comprising among others the cedar, the olive, the thuya or *cître*, the cactus, and the cork-oak. Considerable quatities of these woods are already exported from that country, and the commerce is increasing daily. Of all these woods of Algeria, the *cître* or thuya attracts the most attention; it was known and esteemed for its use in cabinet work in the time of the Romans, by whom a piece of furniture of this wood was considered an article of luxury. The wood is of a light red, varying from pink to a deep flame color. The part of the tree preferred is that situated at the junction of the bole or trunk with the root, as it yields the most variegated, wavy, or spotted timber. This is a remark worthy of the attention of our wood cutters and cabinet makers. Hitherto we use both at home and for exportation only the trunk or bole of the tree, between the stump and the first fork, being precisely that part which yields the fewest of those variegated effects of the growth, which are so sedulously sought after, for the purposes of the art of decoration.

The Grand Duchy of Tuscany exhibited one of the finest collections of woods, the principal kinds being fir, beech, soft maple, white hornbeam and oak. Among other specimens we noticed a horizontal section of fir, which measured seven feet in diameter, and a similar section of maple, (hollow) of nearly the same diameter; but these two articles had no other merit than that of shewing the grain and the large growth of the trees from which they were taken.

Portugal exhibited some interesting specimens of timber for building and cabinet work.

British Guiana was distinguished for the order and good taste which the Commissioners of that colony had evinced in the arrangement of their interesting collection of valuable woods, the most remarkable being the rose wood and the brazil wood. They also published during the exhibition, a very interesting catalogue of the industrial products of their country.

Singapore, the Sandal Islands, and the Mauritius sent their contributions; and the Island of Ceylon exhibited 300 specimens of the different woods of the oriental world. Australia, Victoria, Tasmania, and the Cape of Good Hope were not behind in this class.

We must notice also the fine collection of woods from New South Wales, one of the most beautiful in the Exhibition.

The inspection of the woods of New Zealand satisfied us of one fact, namely, that till recently the greater part of the woods and plants afforded by that new country were unknown to Europe.

In the class of furs, the finest displays were the contributions of Canada and of Greenland. In the oils yielded by the cetacea, we had the superiority, at least no animal oil was exhibited which would bear comparison with our clarified porpoise and seal oils, and that of the small black porpoise (*delphinus minor.*)

The conclusion to be drawn from a comparative review of the entire exhibition of forest products is, that, excepting a few special exceptions of no general occurrence, no country on the globe is so rich as Canada in large timber of the most useful class, furnishing the staple for the greatest amount of consumption. So much for the productive faculty of our soil. It is our part, taught by experience, to turn to the best account, the great natural wealth of our forests.

The third class of the Exhibition comprised articles connected with agriculture, and comprehended two grand divisions, the history, the implements and the products of cultivation.

We must relate the results of the experiments made at Trappes, thirty miles from Paris, on the land of Mr. Dailly, a celebrated French farmer. For the purpose of the several operations, the land was divided into five

parts. The part on which the experiments in drainage were to be made was under the direction of Mr. Pelligault, an engineer, that for ploughing under Messrs. Auterocke and Thiébaut, that for the various modes of preparing the soil under Mr. Masson, that for the trial of thrashing machines under Mr. Hause, Professor of the Imperial School at Grignon, that in which the drills and grubbers were to be tried, under Mr. Bouchet, foreman to the Pluchet at Trappes.

The draining tiles and other apparatus of the Marquis de Bryas was superior to every thing of the kind previously known. By the application of this system, the Marquis has raised a property near Bordeau formerly worth only £35,000 to an annual value representing a capital of £55,000. The most complete draining tools were supplied by the Vicomte de Rougé of France, and Messrs. Burgess and Keg, of England, General Morin's dynamometer, an instrument to measure the power of traction required by various implements is the most perfect instrument of the kind; the next best seemed to be that of Mr. Bentall of England. Among the ploughs, harrows, and other implements of the kind the most admired were those of Howard of England, of Morse of Canada, of the French School of Grignon, of Ransomes of England, of Hamois of France, of Odears of Belgium, of Redolfi of Tuscany. The horse-hoe of Mr. Hamois of France, the Norwegian harrow of Mr. Cappelea, and the roller of Mr. Croskill of England, were also admired.

The most prominent articles in the next part were an English root-cutter by Messrs. Ransome and Sims, worked by a small steam engine, by Mr. Calla, a French manufacturer; another root-cutter, by M. Maurer of Baden; a churn, from M. de Lamberk of Belgium; a corn-sheller from Austria, a straw-cutter from Belgium; and most remarkable of all, a machine for making draining tiles, invented by M. Calla of France; and another machine, lately invented by a French lady named Champion, for preparing the clay for that same purpose.

The threshing machines which were most approved of were those of Mr. Pitts of the United States, of M. Duvoir of France, of Messrs. Clayton & Co. of England, and of M. Pinet of France. The first was the best, and was worked by a French steam engine made by M. Calla; that of M. Duvoir, the next best, by horse power; that of Messrs. Clayton, by a steam engine of their own; and that of Pinet by a gear of new and very ingenious invention. The Canadian threshing machine had comparatively but little success, and this unfavourable result was partly, perhaps entirely, the effect of the mode of working it, by the horrible plan of horses ascending an endless stair.

The two best reaping machines were those of Mr. McCormick of the United States, drawn by two horses, and that of Mr. Cournier of

France, drawn by one horse. The improvements in this machine are not yet complete, but we are on the right road to such a degree of perfection as will render the use of it common. The four rakes tried were those of Mr. Howard of England, of Grignon of France, of Count Morelli of Sardinia, and of Mr. Moody of Canada. The best was Howard's.

The hay-making machine of Mr. Smith of England, which in a few minutes turned a field of lucerne just mown, astonished and delighted the spectators, and with reason, for the admirable work of the machine is beyond all praise.

It is evident by this review that whatever may be said in America, and especially the United States, of the inferiority of the old world to the new in respect to machines to facilitate the operations of agriculture, we have still more to learn from Europeans than they can learn from us. Immense improvement is in progress, and is the more important from the impetus communicated to the movement by learned bodies, which the single uncombined efforts of individuals in America do not give in an equal degree.

To resume our review of the implements which most attracted the attention of the public and of connoisseurs, and which obtained the preference of the judges at the trials made at Trappes, we come to the reaping machines by McCormick, and that of the self-acting rake by Wright, on the Atkins plan, both from the United States; that by Cournier of France; the American reaping machine, by Manny, which was most successful in cutting lucerne. The French draining apparatus by the Marquis de Bryas, and the Viscount de Rougé; Mr. Howard's horse rake and his plough (of England;) and the dynamometer, by General Morris, (French;) the English hay-making machine, by Mr. Smith; the threshing machine, by Mr. Pitts of the United States, and M. Duvoir of France; steam engines, by Mr. Calla; the corn-sheller from Austria; the straw-cutter, from Belgium; draining tile machines, by M. Calla and Madame Champion of France; and the drill from the Imperial school at Grignon. The principle of all the American reaping machines is that of the saw, moved with great rapidity by wheel gear; this plan is liable to be frequently disordered, but has the great advantage of not choking readily; in the French machine by Cournier, the principle of the shears is substituted for that of the saw, the former being less liable to become disordered or to wear out, but very subject to be choked, and this peculiarity renders it less useful for cutting green crops, such as lucerne. The *Moniteur* remarks, in an article on the subject, that the idea of the reaping or mowing machine is very ancient. They were in use among the Greeks and Romans at a remote period,

and Pliny and Columella describe them. These descriptions are very interesting, particularly as we have, after a long interval of silence and oblivion, recovered the idea, with all the advantages arising from our improvement in the mechanic arts.

In the exhibition of the products of agriculture the different countries were distinguished by contributions as follows: France presented a fine collection of cereals and plants, prepared in the most systematic manner by Mr. Vilmoria, and rice from the celebrated rice-fields of Camargne on the Rhone.

Algeria was especially noticed for its exhibition of agricultural products, properly so termed: wheats of various kinds, barleys, oats, and maize were shewn with their stalks, in splendid sheaves and of species known and esteemed in the days of the Romans, who received from Africa immense quantities of grain.

England drew the admiration of all beholders by her fine collection prepared by Professor Wilson. This collection comprised samples of all the grains with the stalk and the root; models of the fruits and vegetables of the United Kingdom, and herbals shewing the plants peculiar to the soil of the British Isles; the exhibition of English grain, seed and vegetables, was superior to all as a scientific collection; but fell a little short in respect of quantity.

The beautiful collection from Austria was especially remarkable for the cereals of Bohemia, and the fine wools in the fleece from the flocks of Bason de Barteinstein and Count Barkoczy. In the two fold respect of quantity and quality, the Austrian collection was next to that of France.

Prussia exhibited the finest wools in the world which were sent by the Directors of the Royal Flocks at Frankenfelde.

The Agricultural exhibition from Holland was combined in a trophy in the centre of the Dutch section of the annexe.

Portugal occupied a distinguished place in this class of the exhibition. The display of wheat, maize, almonds, olives, vegetable oils and models of fruit and vegetables was above all praise.

Spain had a splendid collection in the department of agriculture, remarkable especially for its variety consisting of all that all other countries produce. It is unnecessary to praise the beauty of the wools and fleeces of their flocks which are already so celebrated.

The Agricultural products of British Guiana, of Egypt, of Belgium, and of the United States, though not interesting as collections, in comparison with those above described, were greatly distinguished for their excellence and importance, and offered some remarkable peculiarities of value.

This third class completed the first group according to the classification adopted by the Imperial Commissioners; the group namely, which comprised the extraction and production of the simple material substances necessary for the support and comfort of life.

I must repeat, inasmuch as the announcement tends to increase our love for our country, that in this group, taken as a whole, Canada held the first place, by its display of natural wealth and its productive capacity. Taking, one by one, the three classes which we have reviewed, Canada stands as follows :—In the first class, being that of mineral products, we were in the front rank in respect of variety of species and scientific arrangement; but certainly far behind in respect of turning our mineral resources to account. In the second class, that of products of the forest, we were in the first rank in respect of the aggregate of useful species which we exhibited, and likewise in the amount of lumbering carried on, with a view to exportation. In the third class, that of agricultural products, we were not behind the first, in respect of the importance of the articles exhibited ; and in the amount of production, as compared with population, we held the same equality of precedence.

Let me here cite, for the general benefit, a truth which becomes more fully patent from this exhibition, namely, that in manufactures, art, not the value of the material, constitutes real superiority; and this truth was proved incontestably at this great scene of competition. Let us every where inscribe the aphorism, "*Intelligence should rule the world.*"

III.

SECOND GROUP.

MANUFACTURES RELATING TO THE APPLICATION OF MECHANICAL POWER.

Classes 4, 5, 6, and 7.

We come to the examination of articles of the fourth class. This comprised articles of general mechanism applied to manufactures, and was the first of the second group according to the classification of the Imperial Commissioners.

It was one of the classes which numbered the smallest number of exhibitors ; the total number from all countries being about 350. Of this number France supplied about 200. The countries which contributed the most after France, were England 31, Austria 17, Prussia 16, and Belgium 14.

The enumeration of a few of the principal articles, noticed by connoisseurs, and mentioned by observers, may be serviceable to attract the attention of Canadian mechanics to the continued efforts and success of Europeans in invention, in the province of mechanical art, as connected with the increasing demand of human ingenuity in producing. All professional persons who made a study of the Universal Exhibition of London in 1851, and who have had an opportunity of attentively examining that of Paris in 1855, confess to an immense amount of improvement in all nations, an improvement which tends to bring the conveniences and comforts of life more and more within the reach of all classes of mankind. The Exhibition of London greatly contributed to to that improvement, and the first idea of *universalizing* exhibitions will ever remain a memorial to the honor of the English name.

Here we particularly remarked, amongst the articles furnished by France for the fourth class, the following articles : a smoke consuming grate, which in the shape of an endless chain, uncoils as the coal is consumed, combining advantages in health and economy, hitherto unknown in the use of this kind of fuel ; a non-condensing and expansive steam engine, the chief merit of which consists in its not causing any pressure on the side valves ; a rotary steam engine ; a pump made by an eccentric rod resting on a tube of vulcanized caout chouc, and acting without the aid of pistons or valves ; a mechanical pair of bellows possessing the advantage of giving an immense volume of air, with comparatively little apparatus ; a ventilator intended to ventilate mines and mills, and which gives besides other advantages a pressure of air six times greater than that obtained by the plans usually adopted ; a machine to regulate the flood gates of canals and dam heads, arranged in such a manner as to keep the water always at the same level under the most disadvantageous circumstances ; a new steam engine on the expansive and non-condensing plan, made in such a way as to preserve all the pressure which the steam has in the boiler, the mechanism is regulated by the hand, and only permits the quantity of steam absolutely necessary to the inversions to be introduced ; a steam engine intended to economise fuel, by employing steam mingled with the products of the combustion ; a steam engine for marine purposes, made to be placed in the stern of the ships, in such a way as to economise space, very considerably, and a dyanometer the highest perfection of improvement, intended to measure exactly the power employed by every working engine.

We observed in the English compartment of the Exhibition a steam engine with three cylinders, arranged so as to economise the heat of the steam, after it has served its purpose ; a hydraulic press for testing cables, &c., of immense power, and a new system of propelling ships, formed by a paddle, feathering alternately, and fixed at the water line.

Austria amongst other things exhibited a pump without either piston or valves, but formed by an eccentric rod; a steam engine remarkable for the way in which it exercised the motive power; a horizontal steam engine and a series of models for double levers or weighing machines.

The following articles coming from different countries also attracted particular attention, namely, a ventilator worked by a steam engine of peculiar construction, and a steam engine made with two cylinders, acting at right angles on two shafts, this comes from Belgium; four oscillating steam engines from the United States intended to act without the usual side valves; a steam engine exhibiting a considerable number of improvements, and intended for sea-going ships, sent by Sweden; a new plan of employing combined pulleys from Sardinia.

Let us now examine the productions of some of those countries which are most distinguished in the fifth class of the Exhibition, particularly all that pertain to locomotives for railroads, and before entering on these details, let us mention one fact of great importance in all questions relating to railroads. It is known that the question of the relative weight of the locomotives, of trains, has, since the origin of railroads, occupied the attention of professional men; people seem to be inclined to different opinions in England and on the Continent. In France, Austria and Germany for example, they are disposed to give locomotives a great weight, supported by a considerable number of wheels, whilst in England people seem inclined to return to the comparatively light engines.

In the Exhibition of France, we remarked in the compartment devoted to locmotives, an engine capable of moving in ordinary use a train of 45 cars loaded with an aggregate weight of 600,000 pounds; to this it appears to add the qualities of being easy to clean, of consuming little fuel, of having a lower centre of gravity, and of having the chimney longer: the mixed machine of Messrs. Gouin which has its tender attached behind for the purpose of making its weight serve to keep the locomotive on the railroad track; the engine "The Eagle," also Messrs. Gouin's, the motive wheels of which are nearly 10 feet in diameter, the boiler is divided in two and the centre of gravity is below the axles of the large wheels, the passenger trains, it is said, can be drawn by this locomotive at a speed of 60 miles an hour; the engines of Messrs. Cail & Co., distinguished for the perfection of the workmanship. The other articles belonging to this class, which were particularly remarked among the innumerable articles contributed by France were, an iron wagon sent from the manufactory of Mr. Nepveu & Co.; the luxurious carriages of Messrs. Clochez and Leclerc; the town carriages by Messrs. Lelorieux and Dunaime; a calash by M. Bergeon; a chariot by Mr. Cliquennois; a phaeton by Mr. Hayot; a carriage by Mr. Balvallette,

and a *char à banc* by Mr. Viderker. In the department devoted to saddlery France numbered 29 exhibitors, who contended with England for the superiority in this branch which is so much cultivated in England.

In the English section of the Exhibition which was particularly distinguished in this class by its fine exhibition of articles of saddlery; we noticed locomotives by Mr. Stevenson and Mr. Fairburn, that by the latter is hung by means of springs made of caoutchouc; a locomotive illustrative of the system of Crampton, which consists in placing the driving wheels behind the boiler; this engine was built in France, at the manufactory of the *chemin de fer de Nord;* the chameleon phaeton by Mr. Starey changing its form at pleasure; a chariot by Messrs. Davis & Sons; and three fine calashes sent by London manufacturers. The 31 English exhibitors of articles of saddlery offered to the public view a complete assortment of everything pertaining to this kind of manufacture. For solidity and excellenee of material, English saddlery has no superior in the world; the names of those who were declared the best amongst the numerous English exhibitors of the class now occupying our attention, are Messrs. Gordon & Son, Blackwell, Cuff, Shipley and Dunlop.

Austria, amongst other articles, exhibited a locomotive from the railroad manufactory of the State, calculated to surmount steep grades; another locomotive from the manufactory of Mr. Gunther; the magnificent state carriage of the Mayor of Vienna; carriages from the manufactories of Messrs. Laurenzi & Co. of Vienna; admirable saddles by Mr. Laoeffler; Hungarian bridles; the plan of a locomotive by Mr. Engerth; Wallachian harness by Mr. Sindel which is extremely light.

The industrious Belgians were not behind in this class; amidst other productions of theirs, we admired the following articles: a locomotive by Messrs. Cockerel & Co., built after the German fashion called Engerth which consists in causing part of the weight of the locomotive to rest upon the tender, so as to equalize the weight of the whole mass, which is thus extended over a wider range of the track; a locomotive by Messrs. Zaman, Sabatier & Co., of Brussels; a berlin by Messrs. Jones, Brothers, of Brussels; some cabriolets by the same manufacturers; a snow plough for locomotives, by Mr. Dufour; harness, saddles and other articles of that description, by Mr. Ladoubée Lejune; some splendid harness by Maréchal; and lastly, some harness by Messrs. Thery de Gand, Rousseau of Liege, and Van-Moll Assche.

We must notice among the products of the kingdom of Prussia, a locomotive by Mr Borsig of Berlin, made for high rates of speed, under favorable circumstances; and the fine bridles by Mr. Kornbach remarkable for their lightness and finish.

The several German states had also sent to the Paris Exhibition a few locomotives worthy of public notice. All the countries mentioned had likewise sent models of the numerous articles composing the track, and the rolling and stationary stock of a railroad.

In carriages, we remarked vehicles by Messrs. Hermans & Co., of Holland, a spanish volante from Mexico, and two waggons from Switzerland.

Among the articles of saddlery from countries not hitherto mentioned, we must notice with approbation, the following: bridles and harness by Mr. Vincent, of Portugal; Italian saddlery of Mr. Talamucci, of Tuscany; and an army-surgeons' saddle, from Holland.

As supplementary to what has been said of the variety of opinions relative to the weight to be given to locomotives, we shall mention one fact, namely that the adoption of elbowed axles, of the requisite strength and quality, enables the machinist to place his cylinder within the frame-work of the engine, while, in any other plan, the want of room, in a manner compelled him to put them on the outside of it. Another conclusion resulting from the Exhibition of 1855, is the adoption of engines of high speed, requiring new and different arrangements of the gearing. Another fact also of some importance is the more general adoption of steel instead of iron, as the material of the principal parts of steam engines.

To the well known elegance and strength which have long distinguished the manufacture of carriages and saddlery, the labors of modern makers have now added lightness. This has, however, by a natural exaggeration, been carried to an excess which trenches on the two former, neither of them less important.

In the sixth class, according to the classification of the Imperial Commissioners are included special machines applicable to materials and in manufactures. It contains twelve sections relating to the following articles, namely: elementary machines, machines for mining purposes, the same for building purposes, the same for the working up of mineral materials, other than metals, the same for metallurgical purposes, materials used in mechanical architecture, machines for the manufacture of small articles in metal, the same for lumbering purposes, the same for farming purposes and the preparation of food; the same for operative chemistry, the same for the arts of dyeing and printing, the same for certain special branches of manufacturing industry.

It would be tedious to give a review, at any length, of the articles of this class, in which there were at least 500 exhibitors: *i. e.* 297 French, 57 English, 36 Austrian, 26 Belgian, 20 Prussian, 18 American, 6 Tuscan, and 5 Swiss. The remainder were from the smaller states of Europe, and 4 from Mexico.

The machines of which this immense collection consisted were put in motion, at the expense of the French Government, by means so skilfully contrived, that the whole was effected, without impeding the passage of visitors, or rendering their free access and the indulgence of their curiosity perilous to themselves. The motive power was communicated from overhead at stated distances, to the extent of more than 1500 feet, by means of belts or straps working on a driving shaft or windlass. This iron shaft of the length mentioned, was supported by an enormous trestle of cast iron, occupying the centre of the annexe, and it was driven by enormous steam engines, situated outside of the edifice. Thus the motive power was distributed gratuitously and without limitation to exhibitors of all nations.

Before we proceed to details concerning particular machinery, let us say a few words respecting the various kinds which attracted the grestest share of public attention. This will shew the tendency of industrial ideas at the Exhibition of 1855. The different modes of applying the principle of the trip-hammer in the manipulation of metals, have been greatly increased, principally in the preparation of leaf gold. Inventions for the mechanical conversion of wood to useful purposes have greatly improved, and been enriched with niceties of fabrication which European art affords; and in this department France displayed some considerable improvements, in sawing out by machinery, materials of exact form, as for ships bends and knees, whether the sawing be done in curved or straight lines. The idea of a composing machine, as applied to typography, has also had new results, which lead us to conclude that it is susceptible of practical application. The improvements made in the cylindrical presses, tending to their application in the printing of elegant volumes, and their coloured engravings are a feature in the labors of successful invention which has but lately appeared.

We should now proceed to a few details respecting certain machines, which are distinguised from the mass by some peculiar merit:

Among those which are adapted to the manipulation of mineral substances which are not metallic, we noticed an Austrian machine, exhibited by Mr. Vittorelli, cutting out by a series of saws, while it planes and polishes with graving tools, building and other stone; a French machine by Mr. Chevalier, which by means of an endless steel-wire adapted to pullies, saws with the greatest regularity the hardest stone, as quartz, granite, and even crystal; the machines for the manufacture of draining tiles by Mr. Borie, celebrated for his hollow bricks, also by Messrs. Calla and Touaillou of France, and those by Messrs. Whitehead and Clayton of England. In these the mass of clay kneaded and passed through a mould of the required form, is cut to fancy, by means of one or more steel threads fixed in a state of tension, in moveable frames.

Among the machines for working in wood we remarked those of Messrs. Perin and Philippe for cutting out mouldings and hollow contours; and morticing machines by Messrs. Damon and Bernier, which have this peculiarity that the mortice is made by an instrument revolving with remarkable rapidity, and remaining rounded at the ends, must be finished by hand. For very long or continued mortices, the superiority of this plan is indisputable, on account of the rapidity of the operation. We noticed two machines by M. Sautreuil of Fécamp; one for preparing flooring boards by a single stroke, the other a planing machine for smoothing building timber on four sides at once; this latter is used in France, in preparing planking for ships; lastly, we remarked a turning lathe, with four descriptions of tools, for the manufacture of wheels. There were likewise two sets of saws, by Mr. Normand of Havre, one for cutting out the ribs, frames and futtocks of a ship, with their bevelings, bends, crooks, and varying thickness; the other imitating with the motion of the cross cut saw, the absolute precision of cut belonging to that implement of manual labor. These two sets of saws were the most perfect machines of the kind. In the foreign departments of the Exhibition we noticed with approbation the tool machines by Messrs. Whitworth, Smith & Co., and by Shepherd, Hill & Co., of England; the veneering saw by M. Schwartzkep of Prussia; and the connecting gear by Mr. Siglo of Austria.

Among the machines for the fabrication of small articles in metal we noticed a forging machine by Mr. Whitworth of England; shears for cutting sheet-iron, by Mr. Richmond of the United States; and a machine for cutting nails, by Messrs. Frez & Stoltz of Paris, who have introduced caoutchouc as a material for springs in all their machines.

In the section of machines to facilitate chemical processes and the manipulation of food, the best were, a mill with five runs of stones, with the friction movement, and fitted so as to permit the separation of a mill stone from the others, even while at work, by Messrs. Fremont, Fontaine and Brault of France; and an apparatus for cleaning grain, by Mr. Vachon of Lyons.

A multitude of machines of great importance certainly, but of no practical interest for us, or which would require too long and too minute a specification, were found in the remaining sections of the class which now engages our attention. These cursory visits to the domain of manufacturing art, will shew how readily we might extract profit from the most rapid survey of this Exhibition. An idea sometimes, or a word, is sufficient to suggest to an artisan the conception of a valuable improvement, or to reveal to him a resource before unknown. We have a right to be proud of our success at Paris, but we must not be led by it to

suppose that we are adepts while we are still but tyros. We have in arts and manufactures still much to learn, and Europe will be our teacher. We may console ourselves meantime with the reflection that we possess, all the elements of progress and prosperity.

The countries which were most distinguished in this seventh class, and which furnished collectively nearly all the articles exhibited, are France, England, Austria, Belgium and Prussia.

For the preparation of particular substances, for weaving and spinning, the corded ribbons by Messrs. Scrive Brothers and Miroude of France, the cylinders, valves, cog-wheels, and other gear by Messrs. Pengest & Co. of France, the pressing rollers by Mr. Fleary of France, and the corded ribbons of Mr. Risler of Prussia, and of Mr. Horsfall of England, were much admired.

Upon the whole, England, which contributed the greatest number of inventions, maintained her superiority in respect of machines adapted to the spinning of cotton; and accordingly Mr. Tresca observes, their exhibition of spinning machines consists almost entirely of cotton spinning machines. Of these English machines, the most remarkable were the carding and splicing machine invented by Mr. Evan Leigh, exhibited by Messrs. Dobson and Barlow of Bolton; the spindle roving frame by Mr. Mason of Rockdale; the various bends of gear in action by Messrs. Elec & Co.; and especially the complete exhibition sent by Messrs. Platt Brothers of Oldham. In the French department public attention was invited to the stripping cord by Mr. Lecœur; the *rota frotteur* and the drawing frame by Mr. Danguy, junior; the mull-jenny loom by Messrs. Gallet and Dubus, with 432 spindles; the blower and spreader by Mr. Koesklein; and the looms of Messrs. Nicolas Sclumberger & Co. "The department of machines for cotton spinning was filled altogether," as Mr. Tresca observed, "by England and France, and, with the single "exception of Mr. Sclumberger's machines presents no progress worth "commemorating."

In machines for the preparation and weaving of flax, we noticed those of Messrs. Mertems of Belgium, Farinaux, Ward and Lacroix of France, Combe & Co. of England. There were also a few machines from Austria and Prussia.

The department of machines for the manufactures of wool is occupied almost exclusively by French exhibitors, among whom we distinguish Messrs. Collet, Vigoureux and Penard, for carding, who follow the modern practice of carding by rovings. Mr. Mercier was at the head of those who exhibited machines for carding-wool.

Messrs. Meynier, Heilman, Michel and Windsor of France, Messrs. Bearzi, Brangirdle and Grassmeyer of Austria, and Messrs. Benardel

and Hensch of Prussia, were distinguished among those of the first rank for the perfection of their machines.

One machine by Mr. Deshayes attracted much attention. It was for making watch guards, purses and other articles of the kind.

The mechanical weaving of stuffs places England, where most of the machines in use were invented, in the foremost rank among all nations. A machine for weaving sail cloth by Messrs. Parker was particularly mentioned.

France takes precedence for machines for the manufacture of figured fabrics, as she had the merit of inventing them. The march of improvement in this department, is superseding the cartoons of the Jacquard loom, by paper patterns which have the advantage of greater economy. The machines of Messrs. Acklin, Espany and Blanchet were noticed with approbation.

Besides these there was a multitude of machines for fulling, combing and spinning of material for mechanical spinning; but it is not to be expected that we should enter into a detailed enumeration of the whole. Those mentioned above are intended to shew how constantly the artizans of Europe are engaged in diminishing the price, while they maintain the excellence of their productions, nay, even increase it, and to impress on our own manufacturers and merchants the necessity under which they lie, of closely following the steps of their teachers, both for their own sake and that of the public.

IV.

THIRD GROUP.

MANUFACTURES BASED ON THE APPLICATION OF PHYSICAL AND CHEMICAL AGENTS, AND HAVING REFERENCE TO INSTRUCTION.

Classes 8, 9, 10, 11.

The Imperial Conservatory of Arts and Trades exhibited the weights and measures of France. This exhibition derived a double interest from the circumstance that these measures has been already adopted by several European States, and that the adoption of them by all is in agitation. They are already in use among the learned of all countries. The necessity of adopting terms and divisions of weight and measure, known to science and of general application, was shewn during the deliberations of the international congress on statistics at Paris in 1855.

The French Government had sent to the Exhibition of the United States' Department, the American weights and measures presented by the United States Government a few years ago.

We noticed the arithmetical machine by Mr. Thomas, which gives products of thirty figures; the new rules for logarithms by Mr. Gravet, and the scales for weighing coins by Baron Séguier.

In the manufacture of time-pieces Mr. Wagner, the French clock maker, has introduced some remarkable improvements, in the method of regulating the compensation in the scapements, and in the uniform action of the pendulums. Mr. Cote of London, made his contribution of improvements in this branch. The spiral springs of the house of Lutz of Geneva, for watches and chronometers were greatly admired. These articles do not lose their properties on being subjected to fire and tempered anew. Their excellence is truly surprising.

The clock for the palace of the Exhibition, by M. Collin, indicated the hour on two dials far apart, by means of electric wires. This is the application of a new system to electric clocks, in making which Messrs. Vérité and Robert Houdin, (the famous Professor of Legerdemain,) excel. Of monumental clocks, the most remarkable were the astronomical clock by Mr. Bernardin of France, and clocks by Mr. Weiss of Prussia.

In watchmaking the reputation of the French, Swiss and Belgian makers is well known, and was well supported at the Exhibition. Of instruments designed to measure time, bulk or distance with precision and specially applied to scientific uses, it may serve a useful purpose to mention a few, namely, an achromatic object glass, by Mr. Lerebours, 15 inches in diameter, and about 26 feet focus; refracting telescopes by Mr. Bardon; a new kind of object glass, adapted for photographic apparatus by Mr. Jamin; a parallactic telescope by Mr. Secretan; an instrument by Mr. Porro, which may be used either as a telescope or as a very powerful microscope; a microscope by Mr. Nachet; microscopes and theodolites, by Mr. Chevalier; and to complete the list of productions, (nearly all French and Parisian), a new instrument, the *profilograph*, by Mr. Dumoulin. This beautiful invention is used to trace an exact outline of a landscape by mechanical means, and for extensive levels its importance is very great.

The English Government exhibited a fine model of the meridian circle at Greenwich. Among English exhibitors Mr. Locke distinguished himself by his parallactic telescope; and the Engineers of the Coast Survey by the fine collection of instruments which they use.

In the Austrian Department we noticed the meridian telescope of the Polytechnic Institute of Vienna, the numerous and beautiful surveyors' instruments, by Mr. Starke, and maps in relief shewing the levels and

zones by varied tints, the roads, and a register of various statistical information.

This class contained, however, numerous instruments to ascertain the density of bodies, acoustic instruments, and electric machines, variously applied, instruments for the purpose of registration, meteorological and other apparatus. We have mentioned only the novelties in this class, for it were an endless task to make special mention of all who distinguished themselves.

The countries which bore off the honors in this class are, in the order of the premiums awarded, France, Switzerland, England, Austria.

We now come to the articles examined in the ninth class.

The art of preparing bog-turf for fuel has been much improved in Europe. Necessity has proved to be the parent of invention.

In a rapid review of this class, much useful information is to be gathered, the bare notice of which may furnish our artizans with ideas of improvement sure to be productive of good. What we are mainly to study is not the products of our own country; these we may always examine at our ease; it is the matters exhibited by other countries, which we can inspect at no other time but that of an Exhibition. Detailed criticisms of these will be given in the final report of the international Jury. There and there only, we are to look for a perfect appreciation of objects.

In its review of the various articles in this ninth class, and giving an account of the visit of Prince Napoleon, the *Moniteur* makes the following remark: "Heating by means of wood, coal, or charcoal, and light-"ing by the direct combustion of a limited number of solid or liquid "substances would at the commencement of the present century have "improved the staple of this ninth class," and it proceeds to notice the growing disposition to use the heat of gas "for *purposes of hygiene, of the* "*preparation of food, and of mechanical pursuits, public and private.*"

The first article taken in the order of classification were chemical matches, in which branch Austria holds the first rank, the specimens sent being the ordinary and regular productions of the makers who sent them. This branch is said to give employment in Austria to 20,000 workmen. Sweden also exhibited excellent specimens of this article. Several French exhibitors had also sent their contributions, and as France is the classic land of taste and fancy, we had *tasteful and fancy* matches. The highest price for round matches was one penny per thousand.

Pressed coal, a mechanical compound of solidified fragments of coal mixed with the residue of coal-tar, has on account of its superiority to coal, come into general use, particularly for shipping. It is sold in

France at 30s. per ton. In the Exhibition, France and Belgium shewed the best specimens of this article. It seems that in Belgium they have succeeded in solidifying coal by pressure only, without the use of the coal-tar to agglutinate it.

The preparation known as *moulded coal*, discovered by Mr. Popelin Ducané, was shewn at the exhibition in numerous specimens, made of the dross and dust of coal mixed and agglutinated with coal-tar. It is in shape like charcoal, or else cylindrical.

The making of turf, in pieces pressed and dried, carbonized turf, or compact anthracite turf, has assumed in Europe a degree of importance and has reached an extent, the proofs of which appear in the products of the kind sent by France and England.

The perfection to which candle-making has been carried is well known. It will soon enable the poorest to lay aside the use of the old tallow candle. England, Austria, Belgium, and France, are here again the most distinguished; France especially is pre-eminent for its shew of acids and alcohols for the rectification of fatty substances, which are the basis of candles.

It would be impossible to describe, in this place, the different systems of warming houses, pertaining to the four groups of which we have knowledge; that is to say, by open fire-places or stoves; by heated air; by the circulation of hot water in pipes; and by steam similarly diffused; but it may be useful to those persons in Canada who interest themselves in the respective merits of those various modes, to be acquainted with the names at least of the artizans who have distinguished themselves by the beauty of their production. These are, for stoves, hot-air stoves, and apparatus for conveying it, Messrs. Laury, Chevalier, Pauchet, and Ambart of France; Messrs. Bailey, Edwards & Son, and Hoole of England; Messrs. Garlon of Belgium, and Stait of Switzerland. For hot water apparatus, Mr. Duvoir Leblanc of Paris has acquired a high reputation and received a medal of honor.

You are aware that the Indians of Canada obtain fire by the rapid friction of two pieces of wood. Well, the pinks of civilization, Messrs. Beaumont and Mayer of Paris, exhibit a machine, consisting of a boiler filled with water which is heated to the pressure of three atmospheres, by the caloric generated by a conical metal tube, in which another cone of hard wood accurately adjusted to fit its interior, is made to revolve. This mode of generating heat is intended to be employed only when the motive power is obtained free of cost, as when it consists of a waterfall. You will perceive that if this novel idea is capable of being usefully and economically applied, the want of water-power will certainly in Canada be no bar to its introduction.

There is a wish to introduce gas, the *Moniteur* remarks as above cited, as an article of domestic fuel. This principle has been applied in England by means of asbestos. The current of gas is convey in a lighted state through an apparatus consisting of wicks of asbestos. Great results are anticipated from this discovery. We may observe that the asbestos exhibited in the Canadian section and sent from Kamouraska is exactly of the pliable and silky kind with short fibres which is suitable for this purpose.

Very interesting apparatus for procuring ventilation was also exhibited as well as models of apparatus applied to blast furnaces for the smelting of ore. The use of this apparatus, the bellows of which convey heated instead of cold air, produces a casting, not only of better quality, but also at less expense.

In the lamp department a vast number of improvements were exhibited which might be very usefully adopted in Canada. True perfection in this department is to be found only in France. We may mention the lamps by Mr. Hadrot, as remarkable for their brilliant light, those of Mr. Aubineau for their great size, those of Mr. Guillaume for their diminutive size, and the cheap and economical lamp by Mr. Dessaules, besides many others. Lanterns for the light houses constitute also a branch of manufacturing skill in which France has attained unquestionable eminence: this superiority is indeed undisputed. The immortal Fresnel who invented the lenticular lanterns, has conferred this glorious preeminence on his country; accordingly the French Government had erected a kind of monument to his honor in the centre of the nave. This was a lenticular lantern of large dimensions, placed upon a pillar, which was dedicated to the memory of the great inventor. The coasts of France are lighted by 198 beacons of various sizes.

There was no great exhibition of improvement in lighting by gas. Most of the apparatus exhibited had reference rather to the transmission of gas, than to the means of generating it, or to its economical use.

The various modes in which electricity is applied to the mechanical arts, composing the ninth class, might afford matter for much interesting speculation; but besides requiring special and exact knowledge, this subject does not possess an interest in our young country, equal to that of the branches of industry here lightly commented on, with a view to draw public attention to the progress of modern art.

We cannot omit, however, to mention the discoveries made by an Austrian, Mr. Ginti of Vienna, in the electric telegraph. That gentleman, by availing himself of the interruption of the electric current, by non conductors, has succeeded in transmitting two different communications

in opposite directions, by the same wire. "This" says Mr. Tresca, "is the greatest improvement yet made in the electric telegraph.

Here we shall close our few remarks in a class, the components of which are highly interesting to Canada, either as a consuming population, or as possessing the natural resources which may render it a producing one to an important degree, in many of the most valuable branches particularised. We shall be fortunate if, while depicting the improvements which were most remarkable at the Paris Exhibition, we may lead some inquiring reader to seek farther and more exact information. This would undoubtedly lead to the adoption of new modes of deriving benefit from our natural resources.

The tenth class, containing articles comprised under the heads of *chemical arts*, *dying and printing*, *paper-making*, *manufactured skins*, *caoutchouc*, *&c.*, is one of those which numbered most exhibitors. Of these the official catalogue contained nearly 2000 of all countries. The countries which contributed most largely to this class with the number of exhibitors from each, were France 900, England 166, Prussia 152, Austria 100, Belgium 58, Spain 33, Holland 33. Next after these was Canada 26.

In the production of matters purely chemical, Austria and the German States appeared to hold the first place in the Exhibition. Among other articles of the kind, we noticed the collection of large masses of alkalein metals from Prussia, and compound ethers from Austria.

White zinc, used as a paint, with great advantage over white lead, was principally exhibited by Belgium and particularly by the Franco-Belgian Company, known as the *Compagnie de la Vieille Montagne.*

England exhibited *Lithia* and *yellow Prussiate of Potass*, obtained by the use of common coal, instead of animal carbon.

It would be tedious to particularise all that the Exhibition contained of acids and other products of the chemical art; but we cannot omit the wonderful French, production the new metal, termed *aluminum.* Aluminum was first obtained as a distinct substance by M. Wochler, a German chemist, but we are indebted to Mr. Sainte-Claire Deville, who continued his researches, assisted by the private purse of the Emperor Napoléon, for producing it as a material for domestic utensils. We cannot here enlarge upon the process by which it is obtained, suffice it to say that, having been already fashioned into domestic utensils, it has been found to possess the following properties: a degree of lightness, equal almost to that of glass, a high degree of sonorousness, a capability of resisting the action of fire next to that of silver; freedom from loss by oxydation, tenacity and hardness equal to these qualities in any of the metals in common use.

Gelatine assumes in Canada a character which is most interesting, inasmuch as it is now used for the preservation of game and other meats, by being applied as a coating to exclude the atmosphere. It is needless to insist on the value of such a process as a measure of preservation. It will be seen at once, that it a principle essentially economical, as the very substance, used as a preservation of the main or principal substance, retains all its value, and that the food thus preserved, undergoing no process of manipulation, remains in possession of all its original flavor and other properties.

Among the numerous specimens of ultramarine produced by artificial means, that of Mr. Guimet of France, the inventor of the process, by which it is manufactured, was naturally the best. Some idea may be formed of the importance of this product when we learn that formerly natural ultramarine cost £75 per pound, and that no more than 4 lbs. were consumed in Europe in a year, whereas Europe now uses five millions of pounds yearly which costs no more than one shilling per pound.

In leather, France was distinguished for its morocco, its varnished leather and its calf leather, all having a world-wide reputation; England for its strong sole leather and that which is used for saddlery. In the articles mentioned, France was closely followed by Austria, Germany and Belgium.

It is well known that the celebrated Russia leather did not appear at the Exhibition, but we must remark that that leather, which has qualities so peculiar, is tanned with the decoction of willow bark and impregnated with an oil extracted from the bark of the bouleau. We make this remark, because we have willow and bouleau in Canada.

In the manufacture of paper, different countries offered a vast number of exhibitors, among the new papers made without rags we noticed straw-paper made by Mr. Louis Piette of Belgium.

It would be a tedious labor to enumerate the different uses now made of caoutchouc, we have already noticed the advantage of substituting it for steel in springs for certain machines. We must remark by the way that we are indebted to France for the discovery of caoutchouc, to England for its first application to useful purposes, and to the United States for its connexion into a pliable and durable substance, as well as into a hardened form, capable of great resistance. Mr. Goodyear of the United States received the grand medal of honor for his discovery of hardened caoutchouc.

The French *savans* who discovered the method of making artificial ultramarine, and who are now producing opium, give us reason to hope for a further discovery in artificial quinine, a product of which the final

disappearance was anticipated together with that of the quinquina from which only it is now obtained.

We now come to a class, the eleventh, which has intimate relation to Canadian interest, being based upon agricultural produce. It relates to the preparation and preservation of alimentary substances.

This class is naturally reducible to two grand divisions, termed, in the words of the Imperial Commissioners : 1. *Preparation of alimentary substances ;* 2. *Preservation of alimentary substances.*

In the *preparation* of alimentary substances, and the extraction of their various elements, we remarked the following articles: an apparatus by Messrs. Martin & Co. of France, for extracting the gluten ; an apparatus for baking, termed the *mechanical kneader* by Mr. Roland, also of France. In the French compartment were observed also many different apparatus used in the manufacture of sugar and spirit from beet-root.

It would be impossible to enumerate the numerous articles in this class, for, as they relate to the most ordinary wants of mankind, they are not the exclusive productions of one or two countries, but fall within the scope of all. Accordingly there was no country which had not numerous exhibitors.

It may be of service to notice the progress made in France in the preservation of meats. In our review of the preceding class we have already made a few observations on the use of gelatine, as a coating to guard meat from contact with the air, but that discovery is the least extraordinary which has been made.

By a process, which consists of rapid drying by means of hot air, and then of compression by means of the hydraulic press, vegetables have not only been prepared for keeping, but also made to occupy a comparatively trifling space. It is only necessary to steep them in cold water six hours, in order to restore them to their original color, appearance and even bulk. It will be seen that, on these conditions, they may be matters of daily use. It is calculated that, by this process more than 1200 lbs. of dried vegetables may be packed in a case of 1 cubic metre (30 cubic feet). This quantity represents 8000 lbs. of fresh vegetables which would on an average require a space of 1300 cubic feet at least. Thus seven times the bulk of nutritive matter may be made fit for transport, in a space 43 times smaller than it would naturally fill. The allied armies in the Crimea were supplied with vegetables, thus prepared, to the extent of 42,000,000 of rations.

The *beef biscuit* of the American Navy is now well known. Several other articles of the kind were exhibited, among them *meat biscuit*, containing, in half a pound of matter, six rations of good soup ; and *biscuit* of the same description, by a company from Buenos Ayres.

The *General Meat Preserving Company* in France have produced a substance which they have termed *conservatine*, extracted from the offal of animals, such as the bones deprived of the marrow, tendons, &c., with the addition of sugar and gum. The principle is evidently the same as that of preserving by gelatine. The question is, which of the two *conservatines* is the best? The Company exhibited a leg of beef weighing nearly 100 lbs., preserved six months before. This had in all respects all the freshness of meat just killed.

But the most extraordinary discovery of this kind is that of Mr. Lamy, a Frenchman, who preserves meat without covering or coating it, exposed to the air and the sun. His process, which he has not revealed, is purely scientific, and consists, it is said, in coagulating those parts which are liable to putrefaction, and which produce fermentation in alimentary substances. He exhibits legs of mutton, preserved several years ago, salmon, pike, vegetables, fruits, whole partridges, and a whole deer preserved two years since. In the winter, Mr. Lamy supplies fruit at fabulous prices, and the purchasers profess themselves perfectly satisfied with the quality of what he sells.

We should endeavor to profit by many of these discoveries, in Canada. They would enable us to export enormous quantities of alimentaty substances, which now remain unsold, because their liability to decomposition or their bulk renders the carriage of them difficult, or too expensive, or altogether impracticable.

V.

FOURTH GROUP.

MANUFACTURES PERTAINING TO THE LEARNED PROFESSIONS.

Classes 12, 13, 14.

The articles exhibited in the twelfth class—that which related to the public health—were few in number. Connected with the supply of water of good quality to large cities, we saw nothing but some filtering machines, which offered no new feature. On this head, we must cite some observations made in the Paris papers. It seems to be agreed that the requisite quantity of water *per diem* for each individual, to place a city in this respect in circumstances favorable to health, is about sixteen gallons or three cubic feet. At Rome the daily supply is nearly 160 gallons to each individual; of course this quantity includes the public baths, public wash-houses, and all that is required for domestic consumption. It would have been well to have exhibited along with our models of bridges

and canals, something to give an idea of our splendid water works at Quebec and Montreal; for it is evident that, in respect of the supply of water and sewerage, those two cities will soon stand pre-eminent among all the cities in the world.

We saw at the Exhibition several models of valves for drains and water closets, but nothing so new or so remarkable as to give new ideas on sanitary polity, or to require special mention.

We observed one article which will be the means of introducing a beneficial change in the construction of buildings in respect of healthfulness. This was a hollow brick, the cavity in which was adapted to form a tunnel, thus establishing a kind of ventilator in the wall itself, preventing damp. We also saw stucco to be used as a dressing for walls and ceilings of rooms in hospitals, dissecting theatres, and other places used for similar purposes. It would of course be impossible to give a minute description in this place, of the various plans for ventilating and heating public and private buildings.

We saw with admiration, in this class, the fine carriages for the sick and wounded of the French army, wagons and moving canteens. These articles had been transmitted to the Exhibition by the Minister of War.

Several apparatus for baths were exhibited, but nothing new, except one for administering baths of condensed or rarified air, either generally or topically.

It would not be generally interesting to speak of the various pharmaceutical preparations which were exhibited. To professional men it would avail little that we should mention them in general terms. The countries which were distinguished in this department were France, Germany, Austria and England.

In surgical cutlery, the superiority of the French is indisputable and undisputed. The countries which, after France, made the best and largest contribution in this respect were Belgium, Denmark, Holland, Norway, Hesse, Portugal and the States of the Church. The articles exhibited were very numerous, from different countries, in artificial limbs, as arms, legs, &c., intended to restore parties who had undergone amputation to the exercise of the functions of which they had been deprived. As these apparatus form in some degree a part of the arsenal of surgery, the fabrication of them comes next in importance after the improvements made in surgical instruments. The three French houses which bore the palm from the whole world, for the perfection of this surgical cutlery, both as inventors and manufacturers, were those of Charrière, Mathieu and Luer of Paris.

It is not long since the time, when, favored by the metallurgical circumstances of their country, the English manufacturers of London had a decided

superiority in this respect. France owes its present ascendancy in this branch to the house of Charrière, and this house is indebted to its own energy for its world wide reputation and immense wealth. As the history of the struggle of this house, at length so successful, may be a good lesson to others, we may venture to quote a few words written by Doctor Giraldès in the *Patrie* : "He, (Mr. Charrière,) welcomed with open arms "all the foreign workmen who came to Paris, and listened with deference "to all the critical remarks addressed to him. Having constant intercourse "with young physicians of vivid imagination and intelligence, he placed "his men and machinery at their disposal, and made at his own expense "the instruments which they devised. His ware rooms are filled with "these abortive inventions, and are more like the museum of an antiquary "than a cutler's warehouse. There are to be seen models of the most fanciful "description, some scarcely formed so as to give a definite idea of their "intended use, others quite finished, but given up as of no practical use. By "such means, and by boldly drawing upon the future, he has created the "magnificent establishment for the manufacture and sale of cutlery which "stands in the *Rue de l'Ecole de Medecine.*"

The person whose contributions to the Exhibition were incomparably the most worthy of admiration, both for their beauty, their perfection and their usefulness, in the department of anatomy and pathology, was Dr. Auzoux of Paris. To his preparations of this kind, Mr. Auzouz had added some fine ones of natural history and comparative anatomy, by the aid of which it was possible to study zoology without the labor of dissection. Of course the studies incumbent on physicians and learned men are not here meant, who can by no means be exempted from the labor of dissection.

The beautiful preparations in osteology of Mr. Vasseur of Paris were also objects of great admiration, particularly those of the *cranium*, the bones of which were placed relatively *in situ* though not quite in contact, and were kept in position by the aid of screws, which allowed them to be handled.

The countries which contributed the greatest number of stuffed birds and quadrupeds were France, Savoy, Wurtemberg and Prussia. They were generally well executed as to attitude, form and preservation. The collection of birds from Canada was greatly admired.

The thirteenth class devoted to articles relating to maritime and military matters, derived additional interest from the passing events of the war, requiring the development of all the resources of modern art. History has not hitherto had to record the display of such an armament as that which the siege of Sebastopol has called into action, and never before were the means of transport applied so as to effect the wonders performed by the Anglo-French squadrons. These circumstances of the time were rather injurious to the effect of the Exhibition of 1855: as certain marine

steam engines intended to be exhibited, were diverted from their pacifie destination, to be usefully employed on board the allied fleets. Thus it was that, models excepted, there were fewer engines exhibited at Paris than at London. But, to make amends, new inventions and evident improvements were manifested, giving assurance that we are on the road to important discoveries, and new modes of applyiug them.

We shall specify a few of the improvements effected in the manufacture of steam engines, intended for maritime service.

The gradual increase in size of the motive machinery, and the use of engines of great power, is the great fact of the age. In this change of system the intention is, not only to move larger bodies, but to attain greater speed, and what has been done in this behalf has established as an axiom "*that greater speed requires greater power in the proportion of the square of the speed required.*"

Another step in the road of improvement is the substitution of the screw apparatus for all others in ocean navigation, particularly in that branch of it which combines *steam with sails.* It was for the purpose of increasing the motive power of the screw, without dminishing that afforded by the sails, when necessary, that the French engineers have invented the screw *à quatre branches*, which may by a system of joints, be reduced to two, and occupies no more space than the screw *à deux branches.* Two new systems were promulgated at the Exhibition, having reference to the placing or housing of the engine in the hull of the vessel; one (French) fixes it in the *dévoyures* of the after part of the vessel in order to save room; another (Dutch) distributes the weight of the engine throughout the entire length of the vessel, in order to avoid these alterations of form produced by the application of considerable weights acting constantly on an isolated point of the frame.

Finally, in France, opinions are in favor of the direct application of the motive power to the screw, while in England they seem to incline to its application by gearing. The adoption of the former principle aims at the saving of room; that of the other diminishing friction and giving better control of the piston, diminishes the wear and tear of the engine. We must observe that the use of steel in various parts of the engine diminishes the risk arising from wear and tear, and the danger of accidents so produced.

Among the numerous exhibitors in this class, the French Minister of Marine was particularly distinguished; the articles exhibited being a great number of models of ships, and their rigging and equipment.

The following articles in this part of the Exhibition demanded especial admiration: a model of the engine of the ship *Napoleon*, a screw of 960 horse power, working by gearing,—said to be the fastest ship of her rate afloat; a model of the engine of the ship *l'Algérien*, a screw, with direct

action, of 900 horse power; a brass screw, weighing 25,000 lbs. intended for the ship l'*Impérial;* this has four fixed branches but is nevertheless removable; a model of the steam mortar-vessel *le Vautour*, the first war steamer in which mortars were shipped and fired,—it is now at Sebastopol; a model of the apparatus used in launching the man of war *l'Ulm* on the Charente, is worthy of especial notice. In this case, it was necessary, on account of the narrowness of the river, to cause the vessel, on leaving the ways, to take a list up and down the stream. For this purpose the ship was rigged on each side with a strong chain. These were shortened by the decussation of certain of their links which were tied with ropes intended to break one after another, their tenacity being graduated and calculated to produce the effect desired. The plan was crowned with complete success; and, having been applied to a body so ponderous as that of the *Ulm*, does credit to the skill of the engineers who devised it.

England exhibited, as illustrations of its naval power, models of the heads and sterns of ships, and articles of various kinds. In the exhibition of the Dutch naval establishment, we notice models of small war-vessels, built with flat floor-timbers. These flat bottomed ships, are intended to navigate the coast, and for attack and defence in shoal water. The war in the Baltic caused great attention to be paid to inventions of this kind.

We now come to the exhibition of articles pertaining to merchant shipping, on the ocean and on rivers. It is remarkable that the exhibition in this class, although no doubt very interesting, was not expressive of all the importance which mankind attach, in our day, to maritime affairs.

The first objects which drew our attention in this department, not as novelties in invention, but for the boldness of entreprise which they indicated, were the models and plans of the several parts of that gigantic vessel, now being built in London by Messrs. Scott and Russel, under the direction and according to the plans of Mr. Brunel the engineer. It is known, that monster ship will measure 23,000 tons, and will, in round numbers, be 700 in length, 80 feet beam, and will have engines of the aggregate power of 2,600 horses. England had also a maritime trophy, containing models of the great ships *Himalaya*, *Persia* and others, diving-apparatus, apparatus for the rescue of shipwrecked persons and property, and a number of articles connected with ocean and river navigation. In the ship-building section of the English compartment, the most celebrated and illustrious name was that of the house of Napier of Glasgow.

England stands foremost among the nations of the world for the number of its large foundries for the manufacture of steam-engines for ships. In respect of perfection and beauty of workmanship, almost all other European nations are on an equal footing; in the experimental part of the art, France seems to hold the first rank. It may not be uninteresting to know that

there are in Europe about sixty great establishments particularly devoted to the manufacture of steam-engines for ships. Of this number England possesses thirty, and France fifteen; the others are distributed among the several other States, according to their population, or rather according to their maritime position.

One of the most striking articles in the exhibition of the French merchant navy, was the fine model of the ship *Danube* belonging to the *Compagnie des Messageries*. It shewed all the details of her construction, rigging and equipment, together with her engine and screw in operation, a master-piece of workmanship. Among the numerous specimens of French skill were building models, half of iron half of timber by the inventor of the system, Mr. Arman, who obtained the Grand Medal of Honor, in this section; numerous models of French clippers; huge plates of iron 3 feet in width, by 15 feet in length and 3 inches in thickness. These plates were intended for the defences of the *floating batteries* contrived by the Emperor Napoleon for the attack on the citadel of Cronstadt, that terrible claw of the Northern Bear.

In the other sections were, the model of a river steamer used by the Austrians on the Danube, of 240 horse power and drawing very little water; the model of the *American*, a river steamer of the United States of 1,000 horse power; a very fine steam engine with a screw having a direct and reverse movement exhibited by the Swedish foundry of Motala to which this article does great credit; an iron stern-post with a rudder of a new form, from Belgium.

In the second division of this thirteenth class, relating to objects of military art and the fabrication of arms, it will be perceived at once that France took the foremost rank. Belgium being the next in precedence for workmanship, particularly in the manufacture of fire arms for sporting purposes. England exhibited very little in this department.

The arms used by the French army were collected in the nave of the palace in a superb trophy, designed by M. Panguilly Haridon, the engineer. Before proceeding to make a few remarks on details, which derived a particular interest from the circumstances of the war then in progress, it will not be amiss to consider the improvements made within a few years in the manufacture of arms, and in the art of handling and using them. Here are then, in brief, the specifications of the improvements made: extraordinary precision of aim in firing from mortars, from the knowledge of the rotatory motion of the shells on their axes; perfection and simplicity attained in the use of rockets in open field warfare; diminished damage from repeated firing now obtained, in manufacturing artillery to the extent of sustaining 3000 discharges without perceptible damage, whereas 200 shells were formerly the greatest num-

ber which could be fired from guns of the largest calibre ; a new method of preserving gunpowder from the effects of the weather and from danger of explosion ; rapidity in loading combined with correct aim in firing, with musketry.

To all this progress we have to add the general improvements made in workmanship and material. The use of sporting guns, loaded at the breech, has also become general, and the alterations made daily in this class of fire arms give us reason to hope that they may be adopted by some arm of the military service. A few brigades have already received them, as for instance the *cent gardes* of the Emperor. To give an idea of the regard to economy which prevails in the manufacture of arms, we may observe that good muskets are to be had, wholesale, in France and Belgium, for ten shillings, while such is the luxury of finish and embellishment applied to sportsmen's guns, that they are sold as high as £500 each.

We noticed in the French compartment the musket of the *cent gardes*, which as we have seen, is loaded at the breech. This musket is fitted with a straight sabre of the length of the old rapier, forming with the musket a lance more than seven feet long. Next we had the celebrated rifle, known as the *Minié rifle*, the improvements in which are due to two French Officers, Messrs. Minié and Delvigne. It is well known that the shape of the ball, which has undergone and is still undergoing great alterations, is highly important in attaining precision in the direction of the ball, fired from this formidable weapon. Revolving pistols have undergone a variety of alterations, most of which are improvements. Mr. Gastine Reinette of Paris, exhibited some barrels of fowling pieces, the strength of which was wonderful. This property of exemption from the danger of bursting is the effect of a new process of welding, which consists in using, instead of flat bands, twisted spirally on a mandrel fitting closely, so as to be welded afterwards, two triangular rods, fitting one into the other, for the purpose of being welded. These bands or rods, thus twisted together on the mandrel are to each other as the female is to the male screw, when the latter is inserted.

I omitted to mention the field-piece termed the *Emperor's system*. This piece, intended to fire shells as well as solid shot, relieves an army from the necessity of carrying mortars, as well as field pieces ; and as the principle equalizes the diameter of the hollow, with that of the solid, shot, it simplifies the service, and facilitates the equipment of an armed force.

Belgium, and particularly Liége, exhibited a vast collection of fire arms, both military and for sporting purposes. All the improvements

known in France, except in a few particulars, are known and turned to practical account, with the same degree of perfection, as at Paris.

Prussia made a fine exhibition of fire arms, among which we noticed the cast steel cannon by Mr. Krupp.

In the English compartment, a Mr. Needham who was an exhibitor, shewed a gun to be loaded at the breech, in which the charge is ignited by a needle. This is a Prussian invention, on which Mr. Needham pretends that he has made improvements. Great praise was bestowed upon some ornamented arms, exhibited by Mr. Zuloaga of Spain. A rifle with carved work by Mr. Rinzi of Milan was regarded as a master-piece of workmanship; and in the Sardinian section we remarked a model of a portable drill for cannon which would save the trouble of sending to an arsenal or an armourer's forge, to repair the touch-hole of a gun, when it is useless.

The fourteenth class contained, under the title of *Civil Constructions*, (buildings for the purposes of civil life) a mass of articles connected with, or pertaining to, the private dwellings of mankind, and to public edifices, required by the social habits of civilized life.

We shall take a hasty survey, for no other is possible, of what this section contained that could interest us. Among the numerous specimens of building stone exhibited, we noticed, first in order, the collection from Wurtemburg, arranged in form of a pyramid, and in the geological order of the natural formations. This comprised granite, sandstone and limestone of various kinds, and belonging to the different epochs. We next came to the fine collection of limestone from the environs of Caen, in Normandy, the price of quarrying which on the spot varies from 15s. to 20s. the cubic metre (30 cubic feet.) There were also specimens of the carboniferous and colored limestone of the environs of Bristol. This collection was the same as that exhibited in England in 1851.

Public attention is now occupied, particularly in France, with a question long and extensively agitated, concerning the fabrication of artificial stone, to supersede rubble masonry with economy of material and labor, and yet secure greater solidity. Mr. Coignet of St. Denis, exhibited a stone consisting of *coal ashes and quick lime*, or of *sand*, *small shingle and lime*, or again, of *sand*, *terra cotta in powder*, *ashes and lime*. This substance costs from 6s. to 10s. per cubic metre. It is run like grouting, and in fact the building is cast in a mould, by portions which are more or less considerable. A house in the environs of Paris was thus cast, in every part, together with its mouldings and other ornaments. Separate walls have also been erected. 50 feet in height, by way of experiment. Blocks of artificial stone are also made, in which plaster is the principal

material. Mr. Bernard exhibited also small specimens of larger blocks, which he is making for the harbor of Cherbourg of an artificial vitrified substance, which appears to be superior to hydraulic cements and grouting. This substance is obtained from plastic clay, well worked, and subjected to excessive kiln-burning.

France, England and Wurtemberg seemed to hold the first place in the invention of cements. The Exhibition contained material evidence of the labors of Messrs de Villeneuve and Vicat, Engineers, particularly in the application of the sub-carbonates of lime, and magnesian limestone.

It would be a tedious labor to give the names of the various marbles from all countries. Some, however, were so beautiful, that it would be unjust to omit to mention them. Algeria had sent, among other kinds, that beautiful marble which is called agate or onyx, the veined and transparent whiteness of which is so greatly admired, and the fine yellow marble of Numidia, these two were celebrated among the ancients. Florence exhibited a collection of those magnificent Tuscan marbles, which are known to the whole world. Greece and the Island of Corsica had splendid specimens of *rouge antique*, green porphyry, *verd antique*, and other marbles. England exhibited fine large specimens of Cornish serpentine.

Many countries had contributed slates, tiles, and bricks, of various forms and quality. The hollow bricks seemed to be much approved of, owing to their comparative lightness and small cost. It was shewn indeed, that in the fabrication of this new article for building, there is a saving both in the quantity and manipulation of the material, as well as in the processes of drying and burning. The articles of this kind exhibited by the house of Messrs. Borie, Brothers, were admirable. Terra cotta was shewn to be applicable to a new use, as a stucco or plaster, in places in which damp might destroy ordinary mortar.

Next after Canada, in the exhibition of timber, as a material for building, came Jamaica, British Guiana, New South Wales, Van Diemen's Land and Algeria, particularly in respect to flooring and woods for internal decoration. Among the articles exhibited by Algeria, we noticed the wood called Thuya or Citre which was so highly prized by the Romans. Cicero is said to have paid for a table made of this wood, a sum equal to £5000 of our currency. In the Algerine collection, were specimens carefully selected from the root, the trunk, the branches and knots of the tree, in order to shew the variegated colors of each part.

Sweden, Norway, Austria, Tuscany, and several other States exhibited specimens of timber suitable both for building and cabinet work, which

we have already had occasion to notice in a general way, under the head of Products of the Forest.

A word relative to the processes of two French inventions, one for the preservation of wood, the other for coating very soft species of stone as a defence against exfoliation or efflorescence. Mr. Boucheni produces by pressure the complete saturation of the pores of timber with a solution of sulphate of copper, while the wood is still green. The expense of the process and of the material is about 15s. per cubic metre (30 feet cubic) of soft wood. Thus pine of superior quality, worth 6d. per foot, would, after saturation, cost 1s. per foot. As a test of the efficacy of his plan Mr. Boucheni exhibited the results of 18 years' experience. Railroad ties of bouleau, laid down nine years ago, had been taken up in order to be exhibited. They were in a state of perfect preservation, while similar pieces, laid down with them at the same time, were totally decayed. Mr. Kulman, by repeated moistening of the surface of soft stone, coats them with a layer of silex. This he calls silicating. Now this silication costs about 1s. per square metre (9 or 10 square feet) and renders the softest stone as durable as the hardest kinds.

We may be allowed to cite the flattering compliments paid to Canada by Mr. Tresca: "Canada," he says, "*is a land of hope not likely to be dis-*" "*appointed. Active, intelligent, enterprising, beyond all other distinct nations,*" "*which equally abound in the elements of industrial production, it claims and*" "*demands our attention.*"

In the department of metals as materials for building purposes, we noticed among many other articles, cast-iron pillars for beacons, wharves, and bridges; T irons for floors, from several factories of France, in which country this method of building prevails extensively; waved sheet-iron from the French factory of Montataire, used in roofing without rafters or irons, piping for water-works 10 feet long by 3 feet diameter cast at the foundry of Fourchambault in France, for the city of Madrid.

We must not omit to mention the large models of tressels, scaffolding, roofing and other articles connected with building exhibited by Messrs. Neveu & Co. of Paris; as that gentleman is a master in his profession and one of those who advocate and maintain the use of wooden materials in building, against the encroachments of iron. It is impossible to give in this place even a hasty sketch of the numerous models of public works, French and foreign, which were exhibited. France had booms, both temporary and permanent, tunnels, water-works, viaducts, bridges, and light-houses, alse a model of a bridge now being built over the Seine opposite to the Hotel de Ville. This bridge, of one arch, while very light in appearance, evinces a degree of boldness, never equalled, in the arrangement of the key of the arch. An engineer named Martin,

who is also an artist, was struck with the difference in an artistic view, between stone bridges and iron bridges, and with the mean appearance of the latter, and has endeavored in erecting his bridge at Tarascon to give to metal bridges, together with the durability of stone, the same handsome monumental appearance. All honor to Mr. Martin who has thus continued to mingle the useful with the beautiful, as qualities equally necessary!

In the English Exhibition, there was a model of the tubular bridge over the Menai, which sinks somewhat in dignity before the undertaking of the Victoria Bridge; a model of the harbor of Grimsby at the mouth of the Humber, and another of a similar work at Wearmouth.

VI.

FIFTH GROUP.

MANUFACTURES OF MINERAL PRODUCTS.

Classes 15, 16, 17, 18.

Let us cast an eye over the fifteenth class, relating to rough and manufactured steel. There is a species of this material now largely manufactured, and the use of which is rapidly extending, for the fabrication of common tools, parts of steam-engines, and even ordinary carriages. This is called puddled steel. It is not more costly than malleable iron, inasmuch as it is produced by merely interrupting, at a given moment, the process of decarbonizing cast iron while rendering it malleable. Puddled steel, therefore, is merely cast-iron less charged with carbon than the casting of the blast furnace, or iron containing more carbon than malleable iron contains. This discovery, so simple in its nature, is due to Mr. Stengel, a Prussian, and was improved on in Belgium and France. It is now, "*the great fact in metallurgy*," to use the words of a connoisseur. No country is in a better position than Canada to produce this steel, which is destined to supersede iron, very advantageously, in many of its uses.

Yorkshire has placed England in the first rank among the nations which produce the steel of commerce in respect of quantity. These English steels are made of Swedish iron. Next after England comes Austria, in which country the provinces of Styria and Carinthia manufacture a large quantity and of superior quality; then France, represented principally by the steel factories of the Loire, and, lastly, Prussia and Sweden.

Cast steel is now used for many purposes, to which it was considered inapplicable but a few years since. In the exhibition of bells, cauldrons, cannon, plates for engraving on steel, springs, pieces of machinery, rails

for railways, we observed cast steel to be used, instead of iron, giving the advantage of much greater strength, with equal weight, and it is probable ere long, at reduced cost.

In the manufacture of common tools and articles of that class, three countries seemed to supply the demands of a large export trade, being in the order of the quantity supplied, England, Prussia, Austria. France is self-supplying, but exports little. Sheffield, in England, and Solingen on the Rhine, are the chief centres of production.

The problem to be solved in the production of tools, as of other articles in ordinary use, is how to produce the best article at the lowest remunerative price. Taking both these conditions into the account, France, England, Austria, Prussia, and Canada were on terms of perfect equality. Austria has a reputation for the manufacture of scythes which she has always maintained. About 6,000,000 are made in each year, and 1,850,000 sickles and chopping knives. In order to give an idea of the beauty, taste, and luxury displayed in certain articles, on the one hand; and on the other of the cheapness at which similar articles can be produced, we may remark that there are scissors to be had at £10 per pair, and scissors at 1d. per pair, that there are razors sold at 1s. per dozen, which will not shave, and razors which will shave well, at 1s. each.

It would be useless to give a more detailed account of the articles in this class. We must limit ourselves to those which obtained marked distinction, and to new modes of production, new demands of fashion, in order that our countrymen may reap some benefit fron an Exhibition which they could not visit, though they contributed to it so nobly.

The sixteenth class, to which we now come, related to *the fabrication of metal articles of ordinary use.* It would be tedious to mention all the articles comprised in the extensive exhibition of this class, to which so many had contributed, but in which the improvements apparent bore no comparison to those cited in the other classes relating to the manufacture of metallic articles: for the simple reason, probably, that articles of this class being in every day use, have been speedily brought to a certain height of perfection, which cannot be exceeded, except by the silent working of time.

We have already noticed the high intelligence manifested in the manufacture of cast-iron articles in Europe, and the beautiful exhibition made by the Coalbrookdale Company, whose articles occupied a space near that of Canada. Other manufacturers obtained notice, as Mr. Ducel and the foundry at Val d'Osne in France, and Messrs. Réquilé, Pecqueur and Buckens at Belgium; but as we have no commentary to make of any practical utility, it would be tedious to enumerate the

various branches composing the sections of this class, particularly as it is connected with those which precede and follow it.

Among the articles in copper, we noticed the large pieces of wire cloth and metallic sieves, contributed by the German States and the sheet-copper sent by Prussia and France. We must not omit to mention the collection of utensils and articles of zinc, by the *Société de la Vieille Montagne.* As instances of the precious metals applied to ordinary uses, and to utensils, for chemical manipulation, the articles exhibited by Messrs. Desmontis, Chapuis and Co. of France, and those by Messrs. Benham and Froud of England, obtained notice.

The most successful in the fabrication of metal articles for common purposes were Messrs. Delloye-Mathieu of Belgium, the house of Bochum of Prussia, and Messrs. Dietrich, Barbezat, Mouchel and Roswag, and the house of Romilly in France.

The next class, the seventeenth, relates exclusively to articles of luxury, and includes *goldsmiths' work, jewelry and the fabrication of bronzes.*

On the subject of jewelry and goldsmiths' work, we shall say nothing, inasmuch as we could only give a list of names which would convey a very faint idea of the wealth exhibited ; moreover the names may be found in the preceding series. We shall, however, say a few words relative to to the last section in this class, namely that of the bronzes.

This branch which is essentially allied to art, is peculiarly Parisian. Within these few years the discovery of the galvanoplastic art, that of the method of copying by a mechanical process, the master-pieces of sculpture, and that of the use of zinc, and some economical compounds, have greatly enlarged the field of this species of manufacture, by enabling its professors to sell, at prices which are within the reach of persons of middling fortune, fine copies of the great works. It is possible, for instance, thanks to electro metallurgy, to procure for a few shillings, a copy of a bas-relief, on a reduced scale, but possessing all the merit of the original in its relative proportions.

The process of copying, by a mechanical process, here mentioned, is due to two operators, of artistic talent whose names ought to be placed in record, Messrs. Collas and Sauvage. The processes of these artists are different, but both are perfectly successful. The sale of real works of art, at cheap rates, must evidently produce an immense effect in the taste of the people. Messrs. Susse, Barbedienne and others, for instance, are prepared to supply on terms within the means of persons of ordinary fortune, copies of the *Venus of Milo*, and of the *Apollo Belvedère*, in short of all the master-pieces of modern and ancient statuary in plaster ; and copies in metal on a smaller scale at moderate prices.

To this class belong also these beautiful imitations of plants in metal, with their natural colors; with such plants covered with imperishable leaves, and unfading flowers, the fountains of the Palace of the Exhibition were embellished. Prussia seems to reserve to itself the exclusive privilege of fabricating those beautiful castings, of velvet smoothness, imitating the finest lace work, and ornaments which no one else can imitate.

The Universal Exhibition of 1855 was rich in articles of the eighteenth class, namely that of glass, porcelain and pottery, in respect both of quantity and excellence.

In the manufacture of bottle-glass, the inhabitants of the wine growing countries naturally take precedence, as *necessity is the mother of invention;* accordingly France, Austria and the Rhenish provinces sent the finest specimens of bottles and glasses; Austria especially, had in the annexe a trophy of bottles full of wine, exhibiting at the same time the wines and the vessels in which they are deposited for exportation.

Numerous were the articles of window and plate glass, which were exhibited from all the countries of Europe. The two large plates from France especially, and one from Belgium, were looked upon as models of perfection, and triumphs over the difficulties of the art. The same may be said of a collection of glass vessels, contained one within another, to the number of one hundred and four.

France, Austria, and Bavaria were distinguished for their exhibitions of crystals. With respect to crystal lustres, France and England are the sole producers, and this manufacture, the handmaid of luxury, was magnificently reprensented by two candelabra and the large lustre from the French crystal works of Baccarat, and by a candelabrum from Messrs. Osler & Co. of England.

We have to notice an experiment made in France with signal success in the manufacture of crystal. This consisted in substituting boracie acid or silex and zinc for lead. It produces a material harder and less fusible, and renders the glass infinitely preferable to all others for optical purposes; but more refractory for engraving and gilding by heat.

The manufacture of crystals in Bohemia, presents a fact, seen elsewhere and in other pursuits, but which is worthy of being noticed and kept constantly before the eyes of political economists and the heads of industrial establishments: labor carried on by families at home. Those magnificent crystals so perfectly cut and polished, are wrought and perfected, by country people and their families, in their cottages, at those seasons when it is impossible to pursue the labors of the field. We have no time to comment on this fact, but it contains the solution of a problem in social

economy, the corollary of which is the maintenance of a healthy equilibrium between the aggregate of population and the number engaged in agriculture, and the prevention of too great a centralization of the masses, too often the origin and cause of misery and demoralization. The ceramic art has made wonderful advances. The potter now manufactures porticoes, as he formerly fashioned milk-pots. He is become an artist, and statues or groups of statues issue from his hands. He proves that *form, not matter, rules in work of art.* It would be tedious to describe all that was exhibited in pottery, common or monumental, in earthenware or porcelain, branches in which all contended for the palm; always excepting the porcelain of Sevres, which had no equal, though it found many imitators. One word we must say on those machines for tempering and grinding clay, for bricks and earthen pipes, and those moulding-machines, which turn out bricks and pipes, with a saving of time and money which are truly astonishing. Several of them were in operation in the annexe, particularly in the French and English compartments. The most important feature, perhaps, of this mechanical fabrication, consists in the fact, that any one could purchase at a reasonable rate, these pipes for deep drainage which are destined, by their general use, to effect a total change in the agriculture of the world. As our space does not permit us to describe these processes, the adoption of which is becoming universal, and which render art so largely subsidiary to the pursuits of agriculture, we shall mention the names of the two persons who have effected the most in furtherance of this great end, and whose publications ought to be read by all educated farmers, particularly those who possess capital. It may easily be supposed that we mean the Marquis de Bryas, and Mr. Parkes the English Engineer.

VII.

SIXTH GROUP.

MANUFACTURE OF TISSUES.

Classes 19, 20, 21, 22, 23.

We shall cast a rapid glance over the nineteenth, twentieth, twenty-first, twenty-second and twenty-third classes. These comprehended almost a fourth part of the whole number of exhibitors at the Great Exhibition, that is to say, 5,000. The general aim in the manufacture of tissues is low prices. Acccordingly spun cotton, which ten years ago cost 6s. per yard, now costs but 3s., and woollen cloths were exhibited in the Economical Gallery costing only 2s. per yard. This advance towards cheapness seems to be made from time to time, subject to two conditions: at first, it is cheapness only: that is to say, the diminished cost is obtained in the first place, generally speaking, at the expense of quality; but, that point being attained, the manufacturer perceives the necessity of improving the intrinsic value of the article, and, while the selling price remains at the same point, the goods improve, so that after the lapse of a few years, an article is produced at half the primitive cost, fully equal in value, intrinsically, to that of the previous period.

England occupies the first place among the nations for the quantity of cotton manufactured in every form of preparation, and stands second to none in respect of quality; except, perhaps, in a kind which seems peculiar to the town of Lille. This is an imitation of watered silk (*moire antique*) in cotton. England produces nearly one-half of all the cotton goods sold throughout the world. Its factories contain 18,000,000 spindles, and spin nearly 600,000,000 lbs. of cotton yearly. France reckons 4,500,000 spindles, and produces 144,000,000 lbs. of cotton yarn. In Europe, Austria stands next to France, Prussia and the Zollverein to Austria, next Spain, then Belgium. This gradation refers to quantity. In respect to quality, all countries are perceptibly on the same level. We here speak only of the countries which took a serious part in this section of the Exhibition. Of others, it appears that the United States reckon nearly 6,000,000 spindles, and accordingly take rank next after England;

and that Russia stands next to Austria in respect of quantity; but that neither the United States nor Russia has, in respect of quality, all considered, attained the perfection achieved by the nations above mentioned, in many branches of the cotton manufacture. There is a tendency, on every hand, to introduce a combination of cotton with other materials of textile fabrics, substituting it, in many kinds of goods, for wool, flax, hemp, and even silk. This is natural, with a view to cheapness; thus we have wool and cotton, silk and cotton, linen and cotton, and cotton mixed with various other materials.

In the manufacture of flax and hemp, France, Austria, Prussia, and Ireland stand foremost, and *equal*, in respect of quantity. Ireland takes precedence, perhaps, in respect of the production of ordinary goods, but France is far before that country, in fancy goods and the finer articles generally. Nearly all (or at least the greater part of) the articles of this class, from the United Kingdom, are manufactured in Ireland. Belgium shares the distinction of France in respect of quality, and is on a par with the German States, and next after the countries above mentioned, in regard to quality.

In the manufacture of linen and hempen goods, particularly of the former, a great part of the spinning, on the Continent, is still done by hand. It would be a question worthy of consideration, how far we might succeed, by a suitable organization of domestic labor, and in circumstances favorable to substantial competition with the large manufacturing establishments, in producing the same articles, and thus diminishing the still increasing centralization of the masses, which is attended, in the large factories, by that mixture of all ages and both sexes, which produces demoralization and wretchedness.

Several new materials for the loom, or but recently used to a serious extent, now engage public attention. One is the *Urtica Nivea*, of which England exhibited manufactured specimens, under the name of China Grass. Others are the *Agave*, Manilla hemp, the fibres of the cocoa-nut, the palm, of the mulberry, the date, and of a number of others. What do not the savage tribes of the Pacific contrived to effect with the bark of the *cedar?* It is one of the principal objects of mechanical invention of the day to discover methods of applying new materials to the textile art, which till recently was limited to the use of hemp and flax. This is a result of the constantly increasing demand, especially for naval purposes.

This fact which has been evident for so many years, ought to lead us to consider that in Canada our soil and our climate, and the hydrological conditions of the country are admirably adapted for the cultivation of hemp, which in fact used to be exported from Canada.

In woollen manufactures the same relative positions are taken, that is to say, that France, Austria, Prussia, England, the United States and Belgium rank first with respect to the quantity produced, and that nearly all the nations are on a par with respect to the quality of the wool produced. It is, however, but just to add, that the progress in England, France and Belgium as regards fine cloths, is due entirely to the efforts of the manufacturers, whilst as regards Austria, Prussia and Saxony, their position is partly due to their altogether special situation with reference to the production of the raw material; the flocks of Saxony, Silesia, Hungary and Moravia produce the finest wool in the world.

With respect to the price of cloths of similar qualities, the different countries appear to rank as follows: Austria, Prussia, Saxony, Belgium, France, and England; the cheapness of material and low price of labor are conditions peculiarly in favor of Austria.

Woollen stuffs are divided in the first place into embroidered, woven and felted; the woven stuffs are divided into three special classes, light and napless fabrics made of long carded wool, fulled and milled fabrics, made of short carded wool, and lastly, mixed fabrics, a sufficiently vague definition.

In England the fabrics are principally of long wool; Austrian manufactures are of short wool; France excels in the class of novelties and embroidered stuffs; French cashmeres are the only ones which can compete with those of India.

Next to the woollen fabrics are placed all those fabrics in which the skins and hair of different animals constitute the only material, or are mixed with cotton, wool or thread.

Germany alone has exhibited stuffs made from wool taken from the rags of old cloth. This manufacture the French call *Renaissance*. Holland formerly so celebrated for her cloth manufactures and so proud of her special fame, has now lost her glory, and presents perhaps the most striking instance, in this branch, of rapid and complete decay.

Of silk manufactures there were about one thousand exhibitors, the countries holding the first rank in this department were as follows: France 521 exhibitors, Switzerland 94, Austria 86, Prussia 49, the Sardinian States 37, England 35, Spain 30, Tuscany 30, States of the Church 12,—there were also others from several other States.

It appears that France alone produces nearly one-half of all the articles in silk which are sold throughout the whole world, and in this branch of industry France is distinguished, both by the superiority and quantity of her productions. Nothing can compare with the articles of silk from the manufactories of Lyons, Paris and St. Etienne.

For the purposes of this work it is useless to give more than that general formation which no one ought to be without, with respect to the various branches of manufacture and which may tend to enlighten the merchant to a certain extent with reference to the situation of the various markets, and the respective qualities and prices of the articles.

Let us pass on to the articles in the twenty-third class, which comprises hosiery, carpets, embroideries, laces and gold and silver fringes.

To give an idea of the immense difference between the intrinsic values of the original materials employed in this class, it will suffice to say, that for the greater part of these manufactures, the price of the thread varies from 10s. of our money up to £250 per pound, that is to say, in the proportion of one to five hundred, and to give an idea of the importance of the manufacture of lace and embroideries, it will be enough to state that it employs in Europe about 1,300,000 women and young girls. This branch of industry is the more interesting, from the fact, that it is almost the only one which permits the work people to labor in their own dwellings, and which does not expose them to the dangerous promiscuousness of the factory. At this branch the young mother may work with her children around her, under her husband's own roof, and the young girl in the paternal domicile surrounded by her brothers and sisters under her mother's eye.

Imitation cotton lace is made by machinery and can be sold as low as one-half-penny per yard.

The materials of which these beautiful fabrics ase composed, are linen, silk, woollen and cotton thread, sometimes mingled with gold or silver thread.

France and Belgium excel all other countries in the fabrication of laces, prints and embroidery. France surpasses Belgium in the making of black and white silk laces, and fancy articles ; Belgium excels France in Brussels and Valenciennes points. Next to these two countries rank Austria, Switzerland and Scotland. In the manufacture of laces, twists, &c., in fact lace making and embroidery in general, particularly embroidery for religious purposes, France, Belgium, Austria and Switzerland hold the highest rank.

In tapestry work there is one branch which the workers carry on at home ; this is peculiar to Sweden, and has attracted attention as an art, as a production, and as a social question ; this is the manufacture of tapestry embroidered with the needle. We have only now a word to say of the beautiful French manufacture of tapestry ; let us remark the tapestry from Aubusson and other factories and pass gradually to the

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tapestry of Beauvais and Gobelins, which must be considered not so much in an industrial as in an artistic point of view. When by a line traced with worsted thread can be produced, the composition, drawing and coloring of Raphael's *Miraculous draught of fishes*, and Philippe Champaigne's *Dead Christ*, the worker must not only be an artist but a skilful one. Beauvais is devoted more particularly to the manufacture of tissues for house and furniture decoration.

To the exhibition of Gobelins hangings may be added the beautiful velvet carpets called *savonnerie*, which is now a branch of manufacture at Gobelins. One of these carpets, the velvet of which, worked with the needle, is more than an inch in thickness, and at which four workmen have labored seven years, is worth £6,000.

The countries which ranked next to France in tapestry work, were England, Austria and Prussia.

VIII.

SEVENTH GROUP.

FURNITURE AND DECORATION, ARTICLES OF CLOTHING, &C., AND DRAWING AND MODELLING APPLIED TO INDUSTRY, PRINTING AND MUSIC.

Classes, 24, 25, 26, 27.

The exhibition of furniture resulted in great success to France, and especially to Paris ; the only fault found with the exhibitors was, that they did not display specimens enough of the common furniture in ordinary use. It is impossible to describe the richness and beauty of this vast collection of French furniture.

We remarked as deserving of praise an English pier glass with a rose wood frame, from a design by Mr. Brigneaux, a French artist, the workmanship, however, was altogether English ; a fine oak book-case from Denmark, and some pulpits for churches, and a niche carved in oak, with a statue of the Virgin, by a Dutch artist.

In all these branches, designs have to be obtained from Paris or the other industrial centres of France, and this should not be forgotten by those of our cabinet makers who are desirous of being initiated into the secrets of *harmony and mathematical precision in the adjustment of the parts and taste in the decorations and accessories.*

In the other branches of decoration, France always maintained a vast superiority, but the foreign exhibitions were more worthy of remark than on the former occasion in 1851; thus Austria exhibited fine carvings in Wagram stone; Rome, Tuscany, and Sardinia, fine mosaic work applied to decorative furniture; England, some magnificent work boxes, Scotland, her fancy articles shewing the various tartans; Germany, her fancy smoking contrivances.

In Morocco leather work, England and France evince decided superiority.

For paper hangings, France took the same rank which she had carried by assault for furniture. It would be alike useless and tedious to enter into details respecting the different materials employed in the manufacture of furniture, &c., carton-pierre, papier maché, &c.: we have only to observe that Paris alone manufactures £200,000 worth of furniture, and therefore as the different varieties of timber are the chief materials in this branch of industry, which is daily increasing in importance, it is a market, the conditions of which Canada ought to study with some care.

The twenty-fifth class was divided into two principal sections, articles of clothing properly so called, and fancy articles including canes, fans, parasols, and other fancy articles. In this class, as in all those in which taste alone is to be consulted, Paris gives the law, and France manufactures for the whole world. From this general rule, we may except the hats and fabrics of straw from Tuscany, Switzerland and Belgium, the delicate fancy articles in wood from Switzerland, which are equal to those of France of the same kind, some hair work from Prussia, meerschaum pipes from Austria, and some cheap articles in gloves, hats and umbrellas from England.

The most remarkable articles in point of usefulness at the Exhibition of 1855, were some water-proof fabrics of various kinds, seamless clothing of felt, and clothing sewed by machinery.

This exhibition of clothing presents a very picturesque appearance, due to the exhibition of historical costumes by the property purveyors to the Paris theatres, and the national and provincial costumes of the different countries, turbans, vests, and embroidered caftans from the countries where Islamism prevails, the gauzes and costumes of crimson velvet worked

with gold from Greece, clothing of various materials adorned with feathers and shell-work and the spoils of the chase, by the Aborigenes of America, Africa, and Oceanica, and above all, the precious stuffs and gauzes embroidered with gold and precious stones used by the Princes of India.

In this class is comprised the vast collection of toys, consisting of dolls, figures, automata, and a thousand other trifles, usually placed on the mantel piece or drawing-room table. In that class France, England, Austria, Bavaria, Saxony, and Wurtemburg are the most distinguished : the United States exhibited some toys of India rubber, and India some figures in ivory and ebony representing the manners and customs, animals and plants so peculiar to the East. It would be useless, indeed impossible, to enter into any longer details respecting these classes, which, in an examination of this nature possess interest only as a whole, and for which a brief description suffices.

The twenty-sixth class, relating to drawing, and modelling, applied to industry, letter press and copper plate printing, photography, printing and binding deserves a longer and more detailed examination than the classes preceding.

In the happy application of art to industry and the introduction of taste into manufactured articles, we must notice particularly two mechanical processes, both producing the same effects by slightly different means, viz., the reproduction with the greatest exactitude, in fact a mathematical exactitude of every description of object in relief and consequently of the *chef d'œuvres* of sculpture and statuary. These processes invented almost at the same time by two Frenchmen, Messrs. Sauvage and Collas in 1836, have already worked wonders, especially in the manufacture of bronzes and plaster casts, the entire aspect of which they have altogether renewed ; the two master-pieces exhibited to illustrate these processes were a statue, in plaster of the Venus of Milo, increased one-half, placed by the side of a reduction by one-half of the same work, and the equestrian statue in bronze of the Emperor Napoleon the Third, increased to double the size, from the model by Mr. Debay. A host of other copies of all sizes and of different materials, ancient and modern master-pieces, were exhibited in the Palace and the annexes.

By means of wax, every variety of created being with all their colors, reflections, physical appearances, varieties of shade and transparency have been reproduced. Even oysters have been copied in spite of the softness of the substance which characterises them, and the reflections ever fleeting of the mother of pearl composing their shells ; copied we say with a perfection which

astonishes and confounds one : this discovery has rendered immense service to the physical sciences, and to medical study.

Beautiful carvings in wood and ivory and mouldings of different materials both natural and artificial, form part of the fine and interesting exhibition in the class we are now considering. The artists in these different branches appear to have paid special attention to religious art, and from it to have derived their most beautiful conceptions, and their most delicate execution. There seems indeed to be some indefinable connection between the material employed by the artist and the subjects which he treats; for example there are groups and statues which are much more effective in bronze than in marble and *vice versa;* some descriptions of marble are more suited for certain attitudes than for others, and this the artist feels; there is one subject which almost all ivory carvers have treated,—the *Ecce Homo*—is not ivory admirably calculated to represent the sublime sacrifice of the Saviour?

Carton-pierre appears to enjoy special favor among the artificial substances employed in decoration, the frames of the magnificient pier glasses in the exhibition were composed of this material.

Leather has been adapted to purposes of decoration and beautiful hanging of leather worked in relief were to be seen in the palace of industry.

Nearly all the countries of Europe have exhibited in the branches just referred to; France took the lead in this great concourse; Austria possesses the art of producing wax figures; England exhibited beautiful decorations in carton pierre, amongst other things, a church altar surmounted by a statue of the Virgin; and some beautiful medallions with hunting subjects. Italy, and particularly Florence, has distinguished herself by her preparations in wax of subjects in natural history.

Lithography which has, in France especially, been brought to such perfection, is particularly valuable as a means of reproducing paintings from the fact of its being able to exemplify the style and tone of the painter with greater fidelity than engraving either on wood or steel. This art has recently received a new application which goes by the name of *chromolythography*, by which term we may understand *engraving on stone with colors.* This process consists in the drawing upon as many stones as there are colors or tints to apply, drawing on each stone only the part to be produced in one particular color; the difficulty lay in giving the exact precision to the different sections of the entire piece, and adjusting exactly the divisions in all the details of the execution. This difficulty has been overcome and perfection has been attained. Mr. Dufour, the author of the celebrated *Atlas Dufour* has given to Mr. Logan a charming copy reduced

of the Geological chart of Canada, in which are contained 23 different shades and colors. Copies are produced in this style of illuminated manuscripts, the works of pious monks of the middle ages, which are brought out with inconceivable fidelity and skill.

After France, Austria and England are the two countries in which lithography and chromolithography are cultivated with the greatest success. We may remark that by means of chromolithography, the price of colored maps and pictures has been reduced in the proportion of three to one.

England maintains her old superiority in the style of engraving called by the English *mezzotinto*, and which the French name *manière noire.*

It is useless to enlarge on the beauty of copper and steel engravings. In wood engraving, which appears to have reached the zenith of its glory, the different countries in which this art has been carried out, appear to have attained about equal success, the process being more mechanical than in the other branches of engraving.

The imitation of water colors is only carried out in England to any great extent.

The astonishing and curious invention of Mr. Daguerre has, since it left his hands, undergone various modifications; besides daguerreotypes we have now photographs taken on paper, *heliography*, that is to say, a style of engraving in which light takes the place of the burin of the engraver. In this latter branch the exhibitions from France, England, Greece, Florence, Rome and Munich were especially worthy of notice.

We must not leave this subject without referring to the works of Messrs. Solomon and Garnier of Chartres, who, by the application of a discovery made by Mr. Niepce of St. Victor, have by a series of processes in which *iodine, mercury, acids and thick ink* are the principal materials, successively or simultaneously employed, succeeded in producing at will and very rapidly, copies of crayon drawings, specimens of typography and of prints or engravings exactly similar to the original models.

It would be impossible to describe the perfection at which typography has now arrived. The two principal establishments in the world have illustrated the history and progress of this wonderful art, which has changed the aspect of the world. If Æsop, returning to the world had again to answer the double question, "Which is the best and worst thing?" Instead of answering as he did before, "The tongue," he would certainly say it was the art of printing. Let us return to the establishments to which we referred, viz: the Imperial Printing Offices of France and Austria.

The Imperial Printing Off.ce of France exhibited, as shewing the utmost degree of perfection in typography attained in 1855, a folio edition of the *Imitation de Jésus Christ,* with the translation into French verse by Pierre Corneille, ornamented with vignettes and arabesques, executed by purely typographical processes. All the Fs in this edition bear the distinguishing mark of the type of the Imperial Printing Office of France, that is to say, a small mark to the left of the letter, the distinctive sign of all the printed matter issuing from this establishment.

The Imperial Printing Office of Austria exhibited, as the invention most remarkable for its novelty, magnificent specimens obtained by the process styled *methode naturelle,* invented in that fine establishment. These consisted of collections of plants, leaves, roots, ferns, sea-weeds, skins, and other produce of living animals, also laces and tissues. These productions in demi-relief are obtained by the impression of the object itself on a thin sheet of lead, and then taken from the surface of this ductile metal by the electrotype process. In order to obtain the first impression on the lead, the leaf or other object is placed between a plate of lead and another of polished steel or copper, and the whole is then submitted to the action of a rolling press. Nothing can exceed the beauty and fidelity of these copies; by means of this process all public institutions may be provided with copies of those beautiful herbals which are now confined exclusively to a few great and old families, for it is impossible by any other means to produce in relief the characteristics of plants which it may be sought to study.

In this class also is comprised the exhibition of designs for manufactures, an art which gives that superiority to France in all classes of products in which good taste is of any importauce. A manufacturer here executes everything in accordance with a design prepared by an artist who devotes himself specially to the branch, the latter has nothing whatever to do with the mechanical processes, and the business of the workman is only to produce with exactness the design submitted by the artist. In the panorama we perceive the most beautiful designs for stuffs, ornamental and fancy articles and articles of clothing and furniture.

Type founding being the chief element of good and beautiful typography, it is needless to say what perfection it has attained. The progress in this manufacture which has enabled typography to rival engraving and lithography in the production and imitation of arabesques and penmanship is due to Mr. Derriey of Besançon, an artist and type founder, to whom is principally due the bringing to perfection of vignettes in typography. Now, however eccentric may be the signature of a man of law, an exact typographic imitation of it may be produced by moveable type.

Book binding was represented at the Exhibition in all its varied forms from the monumental styles exhibited in the French and Austrian compartments, works of art in which the purest taste has been displayed and in the preparation of which the most valuable materials have been employed and fashioned in a thousand ways, to the cheap bindings in cotton, numerous specimens of which were sent by England. Illuminated covers for the decoration of drawing-room tables or for school prizes were exhibited by Mr. Lenègre of Paris. We notice also beautiful gilded covers and metallic binding, by Mr. Gasté of Paris, applied to public registers and mercantile books, and which by their peculiar style and solidity form a distinct branch of the manufacture.

The twenty-seventh class, which is the last which relates to manufactures, includes musical instruments of all kinds.

We shall only offer a few general remarks to note the most recent improvements in this class, which numbered nearly 500 exhibitors, of whom 350 were French.

An improvement which it is said has worked wonders, as regards sound in wind instruments of wood, is the enlarged arrangement at the outside of the holes, which in these instruments are not stopped directly by the fingers, but by means of a small contrivance for the purpose.

In wind instruments of copper, it seems that by allowing large diameters to the curves, an immense effect is produced in the quantity and quality of the sound.

The celebrity of Italian violins from the town of Cremona is well known. This reputation was due to four or five makers, who no longer exist, but whose talent was such that great *artistes* have paid as much as £1,000 for a *Cremona*, for so are these violins called. A Parisian maker, Mr. Vuillaume, has succeeded in imitating so perfectly that the difference cannot be distinguished, the style, workmanship, arrangements and the varnish of Cremonas, and what is better still, the real merit as regards sound, of these celebrated instruments, satisfying thus both caprice and necessity: this caprice perhaps should not be called so, for without its exigencies such great perfection might never have been attained.

We shall say nothing of the organs, harmoniums and pianos, of which there are about 400 specimens. Every one knows the name of Erard, whose pianos have as great a reputation as the violins of Cremona. The head of this firm died during the Exhibition and the direction passes to the nephew of the deceased, who was himself a nephew of his predecessor. This firm has acquired a princely fortune, and owns the celebrated

estate of Passy, known as the Chateau de la Muette. The firm of Erard has a branch in London.

We may mention the mechanical piano by Mr. Debain of Paris, on which you may play without being a musician, as you play on a barrel organ, by turning a handle, but, by means of an excellent piano key-board, (the very best if you like) the keys of which are acted upon by notes of music, represented on small boards by metallic points, which perform like a great master. Thus you have one of Mr. Debain's mechanical pianos, you ask for the music of a new opera, it is sent to you noted on a board, with the breves, crochets, &c., you place it in the slide of your piano, you set some one to turn the handle, and you hear the opera beautifully executed. Mr. Debain gives nearly 100 pieces of music noted on boards to those who purchase his pianos.

The countries which most distinguished themselves in the fabrication of musical instruments, were France, Austria, Prussia, Bavaria, Italy and Belgium. Naples is particularly celebrated for her inimitable *chanterelles.* Of copper instruments Austria had as many exhibitors as France. This was we believe the only section in the whole exhibition in which a foreign state had as many exhibitors as France.

IX.

THIRTY-FIRST CLASS.

We have already referred to this interesting class of domestic economy. In the recapitulation of prizes we shall see the success obtained respectively by each nation; let us here mention the classes in which the different nations excelled in cheap productions. In this class were comprised articles connected with printing destined to furnish means of instruction to the working classes. In this class Messrs. Mame & Co. of Tours, have received the Great Medal of Honor, for their educational works, and other publications, combining excellence of quality, at a low price, the combination of which two elements alone constitutes cheapness.

In the section relating to the preparation of articles of food, we remark with interest the various Italian meals and pastes, the meals and preserved

meats of France, and Canada, the beautiful preserved fruits and vegetables of France, the French and Rhine wines. The countries which are distinguished in this section are,—in the order of success obtained,—France, Portugal, Sardinia, the German States, and Canada. Austria exhibited some wine of good body, at an excessively low price, and Spain some dried fruits at very moderate prices.

In the section relating to clothing, we admired the cheap French cloths, but especially those of Austria and Prussia, the French boots and shoes, the Prussian and English cottons, and the cheap Austrian and Belgium linens. As regards the number of prizes obtained in this section, the different countries ranked as follows: France, Austria, Prussia, England, the German States, Portugal, Canada and Belgium.

In the section relating to dwellings we remarked, French and English economical methods of building, economical contrivances for lighting from France, Belgium and Portugal. France exhibited nearly all the articles in this section.

In the section relating to furniture, we observed iron furniture from England and France, furniture of common woods from France, delf and stoneware from England, France, and Portugal, and a fine collection of coopers' work from the United States.

We have already stated that, in this class, articles connected with printing at low prices, destined for the education of the poorer classes were admitted. In this branch France obtained several prizes, and Prussia also for cheap engravings, destined for popular education.

It must be borne in mind that to derive profit from these observations, it is necessary, in each class, to refer simultaneously to the different series, and to the recapitulation which immediately follows the fourth series, which contains the total number of prizes awarded to each country,—this number may be compared, with the number of exhibitors given at the commencement of these observations; these series are rendered complete each one by the others.

Our labors are now brought to an end. A writer has said: "Let us "hope that this great exhibition will not be looked upon only as a "simple matter of curiosity on the part of the public, or as a simple question of publicity and progress on the part of the exhibitors;" were that all indeed, the exhibition being concluded, nothing more remains. We have endeavoured to derive from it some little information for Canada, and have managed that some written documents shall remain in Europe, which may serve to perpetuate for the benefit of the country, the useful and practical remembrance of our own exhibition. Our motto has been: "To diffuse information respecting Canada, and to study the industry "of other countries."

FOURTH SERIES.

A FEW WORDS ON THE UNIVERSAL EXHIBITION OF BREEDING ANIMALS.

The grand agricultural exhibition of breeding animals was held in the Champ de Mars during the first month of the Industrial and Art Exhibition which took place at Paris; it formed a necessary addition to the class of the great exhibition relating to agriculture.

The place set apart for this exhibition was a portion of the west side of the lawns which border the Champ de Mars. Five rows of tents and stalls tastefully ornamented, served as shelter for the 1684 animals sent thither from the different countries of Europe; wide passages, and squares adorned with sparkling fountains and the trees in the vicinity, afforded shade, air, space and ventilation to the thousands of visitors assembled there from all points.

The only species of animals admitted were, horned cattle, sheep, swine and poultry. The classification had provided two principal sections in each class, viz: male or female animals of breeds foreign to France, born and raised by foreigners out of the country, the property either of foreigners or natives; and male or female animals of either French or foreign breeds, pure or crossed, born and raised in France. Each section was further divided into a certain number of classes, comprising the different breeds.

At the close of the exhibition, His Excellency the Minister of Agriculture deduced the conclusions to be drawn from the general results of the exhibition: "From comparative study," said His Excellency, "may "be drawn a rule to a certain degree fundamental. The three qualities "(in horned cattle,) meat, milk and labor are very rarely united. The "predominance of one of these qualities speedily demonstrates the "absence of the other two."

After an analytical study of the exhibition, of the different varieties of horned cattle, it seems clear: That the breeds which appear to unite the largest proportional average of the three qualities specified, are the French breeds of Salers, Aubrac, and Parthenai.

The breeds which were distinguished the most, for the quality of meat, are the English Durham breed, which exceeds all the known breeds in

this respect and in point of precocity, and also the English Hereford and Devon breeds.

The breeds which combine to the greatest degree, the two qualities of milk and meat, are the Dutch breed, the Swiss, Fribourg and Schwitz breeds, the English Ayrshire breed; the Scotch breed, and the French Normandy and Flanders breeds.

The French Charolais combines to the greatest degree, the two qualities of meat and labor. This breed exhibits great beauty of form.

The Breton and Alderney are for their size the best for milk. The Breton breed particularly, is extremely small and the elegance of its form gives it the appearance of an animal intended to ornament a park, rather than the appearance of a farm animal.

The qualities of meat have attained their highest state of developement in England; those of milk and labor in France, Belgium, Holland and Switzerland.

The finest breeds of sheep, for wool, are those of Saxony, Spain, France and Austria. The quality of sheep, in the way of meat, has attained the greatest perfection in England.

In conclusion, it appears that the finest breeds of horned cattle in their respective qualities are, the Durham, Flemish, Hereford, Norman, Schwitz, Swiss, Parthenai, Ayrshire and Charolais. In the section of sheep, the pure or crossed merinos are far superior to the others. As regards pigs, the Craonaise and Leicester breeds appear to be preferred.

To give an idea of the munificence of the French Government, it is sufficient to say, that the first prizes in the different categories of the horned cattle class, consisted of a gold medal and the sum of £50. The French Government extended to this portion of the Great Exhibition, the same idea of rewarding, besides the exhibitors themselves, the subordinate workman, &c., and awarded prizes consisting of medals and sums of money to the stewards, bailiffs and farm servants, recommended as having contributed to obtaining the desired results.

The population of Canada, being especially an agricultural one, they will read, not without interest, the names of some of the great European breeders. In order that the most distinguished of these may be known, we propose to give here the names of those who took the first prizes in the different classes, sections and categories.

I.

FIRST CLASS.

HORNED CATTLE.

First Section.

Animals of breeds foreign to France, born and raised out of the country:

First Category—Short Horned Durhams.

1st prize for a bull 16 months old, the Marquis of Talhouet de la Sarthe, France.

1st prize for a cow of 20 months old, Lord Leversham.

1st prize for a cow 4 years old, Mr. Stratton, England.

Second Category—Hereford breed.

1st prize for a bull 8 years old, Lord Berwick.

1st prize for a cow 43 months old, Mr. W. Perry, England.

Third Category—Devon, Sussex and analogous breeds.

1st prize for a Devon bull 5 years and 8 months old, Mr. G. Turner, England.

1st prize for a Devon cow, H. R. H. Prince Albert.

Fourth Category—Ayrshire, Alderney and Scotch breeds.

1st prize for a Scotch bull 39 months old, Lord Talbot.

1st prize for an Ayrshire cow, 6 years old, the Marquis de Vogué du Cher.

Fifth Category—Dutch breed.

1st prize for a bull 3 years old, the Agricultural Colony of Gaillon, in France.

1st prize for a cow 7 years old, Mr. Gilles of Saine and Marne.

Sixth Category—Swiss breed.

1st prize for a bull 2 years old, Dr. Muller of Switzerland.

1st prize for a cow 7 years old, Mr. Charles Muller of Switzerland.

Seventh Category—Schwitz breed.

1st prize for a bull 42 months old, Mr. Chabert of Lower Rhine.

1st prize for a cow 9 years old, Mr. Bella, Director of the French School of Grignan.

Altogether 62 prizes and honorable mentions were awarded in the seven preceding categories.

Second Section.

Animals of French and foreign breeds born and raised in France.

First Category—Norman breed.

1st prize for a bull 32 months old, Mr. Lainé of the Lower Seine.

1st prize for a cow 5 years old, Mr. Lechantier of Calvados.

Second Category—Flemish breed.

1st prize for a bull 30 months old, Mr. Demarelle of l'Aisne.

1st prize for a cow 8 years old, Mr. Douville of La Somme.

Third Category—Charolais breed.

1st prize for a bull 23 months old, the Count de Bouille, de la Nievre.

1st prize for cow 30 years old, Mr. Louis Massé, du Cher.

Fourth Category—Garonnais and Agenais breeds.

1st prize for a bull 17 months old, Mr. Truel de Beaulieu of the Department of Haute-Vienne.

1st prize for a cow 4 years old, Mr. de Lavergne of Gers.

Fifth Category—Comtois breed.

1st prize for a bull 10 months old, Messrs. Tourtel Brothers of La Meurthe.

1st prize for a cow 4 years old, Mr. Chaupy of Doubs.

Sixth Category—Mountain breed.

1st prize for a Limousin bull 34 months, Mr. Tarnaud of Haute-Vienne.

1st prize for an Aubrac cow 26 months, Mr. Charles Durand of la Lauzère.

Seventh Category—Parthenais, Cholatais and Nantais breeds.

1st prize for a Chalotais bull, 12 months, Mr. David of La Loire-inferieure.

1st prize for a Chalotais cow 6 years, the same, Mr. David.

Eighth Category—Breton breed.

1st prize for a bull 23 months, Mr. Guenevoux, of Ile-et-Villeine.

1st prize for a cow 23 months, Mr. Allier.

Ninth Category—Other French breeds.

1st prize for a Breton bull 5 years, Count de Champagny du Morbihan.

1st prize for a Lorraine cow 6 years, Mr. Pargou of La Meurthe.

Tenth Category—Pure Durham breed raised in France.

1st prize for an ox of 20 months, Mr. Boutton-Lévêque.

1st prize for a cow 29 months, the Count of Falloux.

Eleventh Category—Other pure foreign breeds.

1st prize an Ayrshire bull 21 months old, the Marquis of Dampierre.

1st prize for a Swiss cow of 6 years old, Mr. Thiéraut Abbé of Marne.

Twelfth Category—Cross breeds.

1st prize for a Norman-Durham bull 3 years old, Mr. Gregoire of Marne.

1st prize for a Durham-Cotentine cow of 3 years old, Mr. Cecire of l'Orne.

In this second section of the first class, there were awarded 86 prizes and honorable mentions of all sorts.

SECOND CLASS.

SHEEP.

First Section.

Animals born and raised in foreign countries.

First Category—Merinos and half-breed Merinos.

No first prizes were awarded in this category.

2nd prize for a ram of 2 years old, Mr. C. Collin of Holland.

2nd prize for a lot of Merinos-negretti sheep, the same, Mr. Collin.

Second Category—Breeds with long wool.

1st prize for a ram of Leicester breed, Mr. Ringdom of Lynch.

1st prize, *ex-œquo*, for a Leicester ram, Mr. L. C. Watkins.

1st prize for a Leicester sheep, Mr. G. Turner of England.

Third Category—Breeds from Holland, Texel, Cotswold and Oxford.

1st prize for a Cotswold ram, Mr. Beale Brown of Switzerland.

1st prize, *ex-œquo*, for a Cotswold ram, Mr. Landy.

1st prize for an Oxford sheep, the same, Mr. Brown.

Fourth Category—South Down and analagous breeds.

1st prize for a South Down ram, Mr. Jonas Webb, of England.

1st prize for a South Down ram, Mr. Rigdon of England.

1st prize for a South Down ram, Mr. Allier of France.

In this section of the Second Class there were awarded altogether 40 prizes.

Second Section.

French and foreign breeds born and raised in France.

First Category—Merinos and half-breed Merinos.

1st prize for a Merino ram, Mr. Simphal of l'Aisne.

1st prize for a lot of Merino sheep, Mr. Hutin of France.

Second Category :—Foreign breeds with long wool.

1st prize for a New Kent ram, Mr. Allier.

No first prizes for sheep in this class.

Third Category :—Foreign breeds with short wool.

1st prize for a ram of South Down breed, the same Mr. Allier.

No first prize was awarded for sheep.

Fourth Category :—Cross breeds.

1st prize for a half breed merino ram, Mr. Millaut, of Cher.

1st prize for a lot of Dishley merino sheep, Mr. Pluchet, of France.

THIRD CLASS.

SWINE.

First Section.

Animals born and raised in foreign countries.

First Category :—Large breeds.

1st prize for a boar of Berkshire breed, Mr. Boutton Lévêque, of France.

1st prize for a Manchester sow, the Viscount of Curzay, of France,

Second Category :—Small breeds.

1st prize for a Leicester boar, Mr. Bacary Williams, of England.

1st prize for a Leicester cow, the same Mr. Williams.

The total number of prizes and honorable mention granted in this section was 11.

Second Section.

French and foreign breeds raised in France.

First Category :—Pure French breeds.

1st prize for a boar of *Craonaise* breed, Mr. Boutin, of Maine and Loire.

1st prize for a sow of Augeronne breed, Mr. Allier, of France.

Second Category :—Different foreign breeds.

1st prize for an Essex boar, Mr. Allier.

1st prize for a cow of New Leicester breed, the Marquis of Dampierre.

In this section there were awarded in all 16 prizes.

FOURTH CLASS.

GOATS, RABBITS, &C.

1st prize for a he-goat, Mr. Giot, of France.

1st prize for rabbits, Mr. Gérard, of Paris.

There were awarded altogether 5 prizes in this class.

FIFTH CLASS.

POULTRY.

1st prize for poultry of Crevecœur breed, Mr. Chaumel Adam, of France.

1st prize for a lot of Cochin-China breed, Mr. Gérard, already mentioned.

1st prize for a lot of Dorkings, Mr. Keyworth, of England.

1st prize for a lot of Spanish poultry, Mr. J. C. Baker, of England.

1st prize for a lot of Brahma fowls, the same Mr. Baker.

1st prize for a lot of Dutch breed, Mr. Gevers Deynout, of the Netherlands.

1st prize for a lot of Italian fowls, Mr. Gérard, of Paris.

1st prize for a lot of fowls of mixed breeds, the same Mr. Gérard.

1st prize for turkeys, the same Mr. Gérard.

1st prize for geese, the same Mr. Gérard.

1st prize for ducks, Mr. Lemaire, of France.

1st prize for pigeons, Mr. Burzeau, of France.

There were awarded altogether 28 prizes in this last class.

RECAPITULATION

OF THE

PRIZES AWARDED.

NOTE.

The following extract from the lists of prizes awarded, by the International Jury, to the contributors from the different countries represented at the Exhibition, may be very useful to commerce in general, as being the expression of the degrees of advancement attained in the different branches of industry by the different nations of the world.

We have already seen that the exceptional prizes awarded by the Imperial Commission, under the titles of Grand Medals of Honor and Medals of Honor, are intended as the expression of the degree of perfection obtained, or of discoveries added to science, and in consequence are limited in number, in so far as general production is concerned.

In awarding the first and second class prizes, and the honorable mentions the good quality and comparative cheapness of the articles exhibited were more particularly considered. We have already seen, in the third series of observations upon the exhibition, mention made of the production in large quantity, of articles exhibited in the principal branches of industry. In order to form a correct opinion of the comparative state of manufactures in the different countries, we must not lose sight of the extent of population, and in order to study the industrial conditions of the various populations, we must examine the circumstances of situation, climate and extents of territory, in which they are situated.

At the end of each class is inserted a list of the prizes, awarded to the journeymen and overseers of the exhibitors of the different articles. The intention in adopting this description of prizes, has been to reward the personal merit of the artists, painters, sculptors and mechanics, whose talent, good conduct and zeal are the mainspring of the production of the articles exhibited. The number of these prizes in each branch of industry affords, to a certain extent, evidence of the social condition of each country, and still more of the solicitude of the heads of the different branches for their subordinates, as least as far as regards Europe.

We shall see at the conclusion of each class a detailed list of the prizes awarded to Canadian exhibitors. We should here mention with gratitude the services rendered in the Canadian portion of the Exhibition to the members of the Jury and others, by Messrs. De Puibusque, Hector Bossange and Maitland, Honorary Commissioners, residing in Paris. These gentlemen exerted for the benefit of Canada all the experience which their long residence in Paris gave them, and all their knowledge of the resources of Canada,—in fact they used all the zeal and energy which a spirit of kindness could suggest.

PRIZES OBTAINED BY THE DIFFERENT COUNTRIES IN THE DIFFERENT CLASSES OF THE INDUSTRIAL EXHIBITION.

FIRST CLASS.

Mining and metallurgy, comprising general statistics, the modes of working mines, the modes of preparing metals, coals and combustible minerals, iron, common metals, precious metals, coins and medals, non-metallic mineral productions.

PRIZES.

Grand Medals of Honor	Belgium	3
	Prussia	1
	Canada	1
Medals of Honor	France	5
	Belgium	2
	Austria	1
	United Kingdom	1
	Prussia	1
	Hanover	1
Medals of First and Second Class, and Honorable Mentions	France and her Colonies	143
	United Kingdom and Colonies	65
	Austria	60
	Prussia	43
	Belgium	38
	Zollverein	22
	Sweden and Norway	21
	Spain	12
	Portugal	11
	Tuscany	9
	Sardinia	4

Medals of First and Second Class, and Honorable Mentions	United States	4
	Ottoman Empire	2
	Switzerland	2
	States of Spanish America	2
	States of the Church	1
	Greece	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN AND WORKMEN.

Only one Medal of Honor was awarded, to Mr. Dusouich of France, Mining Engineer, for a Pamphlet.

France	74
Belgium	24
Prussia	6
Austria	4
Hanover	1

PRIZES TO CANADA.

The Grand Medal of Honor was awarded to Sir William Logan, for his Geological Map of Canada, and as exhibitor of the greater part of the collection of minerals.

SECOND CLASS.

Everything relating to the management of trees, or to sporting fishing and hunting, and products obtained without cultivation, comprising statistics and general documents, management of the trees, hunting of terrestrial and amphibious animals, fishing, products obtained without cultivation, destruction of vermin, means used for acclimatizing animals and plants.

PRIZES.

Grand Medal of Honor	France	1
Medals of Honor	Canada	1
	British Guiana	1
	Sydney	1

Other Prizes	France and her Colonies	40
	United Kingdom and Colonies*	27
	Austria	8
	States of Spanish America	7
	Spain	5
	Netherlands	3
	Portugal	3
	Greece	2
	Sweden and Norway	2
	United States	2
	Tuscany	1
	Denmark	1
	Ottoman Empire	1
	Switzerland	1
	Prussia	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN AND WORKMEN.

France	19
United Kingdom	7
Austria	5
Spain	2
Prussia	1

PRIZES TO CANADA.

A medal of honor was awarded to the government of Canada for all the collection of this class, and of the following class which belongs to the same group (see catalogue for names of contributors.)

A first class medal to the Hudson's Bay Company, for a collection of furs.

A first class medal to Mr. Andrew Dickson, of Kingston, for a collection of timber.

A second class medal to Messrs. Farmer and De Blaquière, of Woodstock, exhibitors of a collection of timber.

A second class medal to Mr. Sharples, of Quebec, for exhibiting a collection of timber.

* The prizes given to Canada, as also those of all the other Colonies, in all the classes, are included in the number of those of the United Kingdom, and are reported with details at the end of each Class.

THIRD CLASS.

Agriculture, comprising statistics and general documents, farming, agricultural tools and implements, general produce, special produce, rearing of useful animals, industries immediately connected with agriculture.

Grand Medal of Honor	United States	1
Medals of Honor	United Kingdom	5
	Austria	3
	Denmark	1
	Grand Duchy of Baden	1
Other Prizes	France and her Colonies	356
	Austria	90
	United Kingdom and Colonies	68
	Portugal	56
	Spain	35
	Belgium	31
	Greece	21
	German States	21
	Prussia	18
	Sweden and Norway	17
	Denmark	11
	Tuscany	10
	Sardinia	9
	Netherlands	9
	States of Spanish America	7
	Switzerland	6
	Ottoman Empire	6
	United States	5
	Tunis	1
Prizes awarded to Overseers, Journeymen and Workmen	France	166
	Austria	22
	Prussia	6
	United Kingdom	5
	Zollverein	5
	Denmark	4
	Belgium	3
	United States	1

PRIZES TO CANADA.

First Class Medals...	Mr. Cross of Montreal, for cheese. Canada Company, Toronto, for wheat. Lyman & Co., Montreal, for seeds. Mr. Shaw, Toronto, for chicory. Mr. Perry, Montreal, Mechanic.
Second Class Medals.	Mr. Fisher, of Montreal, for seeds. Mr. Fleming, of Toronto, for seeds. Mr. Laurent, of Varennes, for oats. Mr. Morse, of Milton, for a plough. Mr. Shaw of Toronto, for seeds. Mr. Shepperd, of Montreal, a collection of seeds. Mr. Wade, of Cobourg, for seeds.
Honorable mention...	Mr. Coffin, of Gaspé, for wheat. Mr. Evans, of Montreal, for seeds. Mr. Kempton, of Ste. Thérèse, for seeds. Mr. Jarvis, Toronto, for hops. Reverend Mr. Villeneuve, Montreal, for wheat and peas.

FOURTH CLASS.

Machinery in general, as applied to industry, apparatus for weighing and guaging, instruments used for conveying power and detailed portions of machinery, horse gins, windmills, hydraulic machines, steam engines and air engines, machines used in moving heavy weights, hydraulic engines for lifting, ventilators and bellows.

Grand Medals of honor	France	1
	Sweden	1
Medals of Honor.....	France	4
	United Kingdom	1
	Grand Duchy of Baden	1

Other Prizes	France and Colonies	128
	United Kingdom and Colonies	25
	Prussia	8
	Belgium	4
	United States	3
	Austria	1
	Sweden and Norway	1
	Netherlands	1
	Switzerland	1
	Denmark	1
	Spain	
	Sardinia	1
	Zollverein	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN AND WORKMEN.

	France	5
	Portugal	1

PRIZES TO CANADA.

First Class Medal, Mr. George Perry, of Montreal, for a fire engine.

Honorable mention, Mr. Lemoine, of Quebec, for a fire engine.

FIFTH CLASS.

Special machinery and apparatus for railways and other modes of transport, comprising apparatus for carrying burdens on the arm, the back, or the head, specimens of harness and saddlery, materials and apparatus for wheelwrights' work and carriage making, carriages, railway apparatus, apparatus for water conveyance, air balloons.

Grand Medals of Honor	France	1
	Austria	1
	Prussia	1
Medals of Honor	France	8
	United Kingdom	6
	Belgium	3
	Austria	1
	Wurtemburg	1
	Hanover	1

Other Prizes	France and her Colonies	72
	United Kingdom and Colonies	36
	Belgium	9
	Austria	8
	Zollverein	6
	Netherlands	3
	Prussia	2
	Sardinia	2
	Tuscany	2
	Switzerland	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN AND WORKMEN.

France	8
Austria	4
United Kingdom	3
Belgium	3
Sardinia	3
Prussia	2

PRIZES TO CANADA.

Honorable mention to Mr. Barrington of Montreal, for a harness.

SIXTH CLASS.

Special machinery and apparatus for workshops, comprising separate pieces of machinery and apparatus for workshops, machines used in mining operations machinery used in building, machines for working non-metallic minerals, metallurgic machines, apparatus and mechanical contrivances used in workshops, machines used in the manufacture of small articles in metal, machines used in the felling of trees and in their after treatment, machinery used in agriculture and in the preparaton of alimentary substances, machines used in the chemical arts, machines used in connection with dyeing and printing, machines used only in certain trades.

Grand Medals of Honor	France	2
	United Kingdom	1
	Denmark	1

Medals of Honor	France	3
	United Kingdom	1
	United States	1
Other Prizes	France and her Colonies	199
	United Kingdom and Colonies	30
	Belgium	9
	United States	9
	Zollverein	7
	Prussia	4
	Sweden and Norway	4
	Austria	3
	Switzerland	3
	Tuscany	2
	Portugal	1
	Spain	1
	Netherlands	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN AND WORKMEN.

Sardinia	6
Tuscany	4
Switzerland	3
Austria	3
Netherlands	2
Zollverein	1
France	1

PRIZES TO CANADA.

First Class Medal to Mr. Rodden of Montreal, for a Machine for carpenters' work.

Second Class Medals to:
- Mr. Munro of Montreal for a Planing and Grooving Machine.
- Mr. Paige of Montreal, for a large Threshing Machine.

Honorable Mentions:
- Mr. Dunn of Montreal, a nail making machine.
- Mr. Rice of Montreal, a sifting machine.
- Messrs. Dion & Lepage, Rimouski, a model of a threshing mill.

SEVENTH CLASS.

Special machinery and apparatus for the manufacture of woven fabrics, comprising instruments used in spinning and weaving, machines used in the preparation and spinning of cotton, machines used in the preparation and spinning of flax and hemp, machines used in the preparation and spinning of wool, machines used in the preparation and spinning of silk, rope making, lace making and special machines, weaving of the low warp and high warp, looms for making hosiery, apparatus and machinery for bleaching, dyeing, dressing, and the folding of fabrics.

Grand Medals of Honor	France	2
	United Kingdom	1
Medals of Honor	France	3
	United Kingdom	1
	Belgium	1
Other Prizes	France and her Colonies	130
	United Kingdom and Colonies	24
	Prussia	9
	Belgium	8
	Austria	7
	United States	4
	Portugal	3
	Zollverein	3
	Switzerland	1
	Spain	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN AND WORKMEN.

France	8
Austria	4
United Kingdom	3
Belgium	3

No prizes to Canada in this class.

EIGHTH CLASS.

Arts relating to the exact sciences and to instruction, comprising standard weights and measures, documents of all kinds relating to the different weights and measures used in each country, clock work, optical instruments and apparatus of all kinds used in measuring space, instruments employed in the study of physics, chemistry and meteorology, maps, models and documents relating to astronomy, geography, topography and statistics, apparatus used in the study of the sciences, materials for elementary instruction.

Grand Medals of Honor	France	2
Medals of Honor	France	6
	Switzerland	4
	United Kingdom	2
	United States	2
	Sweden	1
Other Prizes	France and her Colonies	197
	Switzerland	63
	United Kingdom and Colonies	18
	Austria	11
	Zollverein	11
	Sweden and Norway	11
	Prussia	10
	Netherlands	8
	Denmark	6
	Belgium	4
	United States	2
	Portugal	2
	Tuscany	2
	Sardinia	2
	Sicily	1
	States of Spanish America	1

PRIZES TO JOURNEYMEN, OVERSEERS AND WORKMEN.

France	4
Switzerland	2

No prizes to Canada in this class.

NINTH CLASS.

Manufactures relating to the economical production and employment of heat, light and electricity, comprising processes having for their object the employment of heat, cold, light and electricity derived from natural sources, processes having for their object the production of fire and light, combustibles to be used as cheap fuel, warming and ventilation of the houses, production and employment of heat and cold in domestic economy, production and use of heat and cold in the arts, lighting, lighthouses, signals and ærial telegraphs, production and employment of electricity.

Grand Medals of Honor	France	2
	United Kingdom	1
Medals of Honor	France	7
	Austria	1
	Switzerland	1
Other Prizes	France and her Colonies	127
	United Kingdom and Colonies	25
	Belgium	12
	Prussia	6
	Austria	5
	United States	3
	Sweden and Norway	2
	Zollverein	2
	Denmark	2
	Portugal	1
	Switzerland	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN AND WORKMEN.

A grand medal of honor to Professor Faraday, of London.

France	5
Belgium	2
Switzerland	2
Austria	1

PRIZES TO CANADA.

A second class medal to Mr. Rodden, of Montreal, for a cooking stove.

TENTH CLASS.

Chemical manufactures, dyeing and printing, paper, leather, skins, india rubber, comprising chemical products, fatty substances, rosins, scents, soaps, varnishes and all kinds of coatings, india rubber and gutta percha, paper and paste-board, bleaching, dyeing, printing, colors, inks and pencils, tobacco, opiums and various narcotics.

Grand Medals of Honor.	France	1
	United Kingdom	1
	United States	1
Medals of Honor	France	8
	United Kingdom	2
	Tuscany	1
	Prussia	1
	Grand Duchy of Hesse	1
	Austria	1
Other Prizes	France and her Colonies	387
	Zollverein	70
	United Kingdom and Colonies	69
	Prussia	60
	Austria	56
	Belgium	42
	Spain	17
	Switzerland	14
	Netherlands	14
	Portugal	12
	Sweden and Norway	12
	Sardinia	11
	States of South America	7
	Tuscany	7
	Denmark	3
	United States	2
	States of the Church	2
	Holland	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN AND WORKMEN.

A grand medal of honor to Mr. Chevreul, of Paris.

Other Prizes	France	35
	United Kingdom	9
	Austria	7
	Switzerland	4

PRIZES AWARDED TO JOURNEYMEN, OVERSEERS AND WORKMEN.

	Belgium	3
	Portugal	2
	Spain	1
	German States	1

No prizes were awarded to Canada in this class.

ELEVENTH CLASS.

Preparation and preservation of alimentary substances comprising flour, fecula and their extracts, sugar and sweet substances, fermented drinks, preserves and condiments, preparations from cocoa, coffee, tea, &c., confectionery and products of distillation, apparatus and processes for the preparation of food.

Grand Medal of Honor.	France	1
Medals of Honor	France	4
	Zollverein	1
Other Prizes	France and her Colonies	420
	Portugal	77
	United Kingdom and Colonies	72
	Austria	60
	Spain	28
	Zollverein	27
	Prussia	19
	Netherlands	16
	Sardinia	14
	Belgium	12
	States of Spanish America	10
	Tuscany	8
	Greece	5
	Switzerland	5
	Ottoman Empire	2
	Sweden and Norway	2
	States of the Church	1
	United States	1

PRIZES AWARDED TO JOURNEYMEN, OVERSEERS AND WORKMEN.

Large Medals of Honor—France 2

Other Prizes	France	30
	Austria	10
	Belgium	10

PRIZES TO CANADA.

2nd Class Medals—Government of Canada for the Canadian collection (see in catalogue the names of contributors to this class.)

Mr. Clarke Fitts, of Montreal for biscuits.

Honorable mentions..
- Mr. Gamble, of Etobicoke, for flour
- Mr. Lawson, of Montreal, for flour and biscuit.
- Mr. McDougal, of Montreal, for flour.
- Mr. Nasmith, of Toronto, for biscuit.
- Mr. Proctor, of Montreal, for flour and Indian corn.
- Mr. Robb, of Montreal, for biscuits.

TWELFTH CLASS.

Hygiene, Pharmacy, Surgery, Medicine, comprising, Hygiene and Public Health, Hygiene in Private Life, Use of Water, Vapour and Gas, Anatomy of Man, and Comparative Anatomy, Veterinary Medicine and care of Horses.

Large Medals of Honor	France	2
	United Kingdom	1

Medal of Honor.—France 1

Other Prizes	France and her Colonies	147
	United Kingdom and Colonies	29
	Zollverein	11
	Sweden and Norway	9
	United States	9
	Austria	6

Other Prizes.........	Sardinia...........................	5
	Netherlands........................	5
	Spain..............................	3
	Prussia............................	2
	Tuscany............................	2
	Belgium............................	1
	Ottoman Empire.....................	1
	States of Spanish America..........	1
	Denmark............................	1
	Greece.............................	1
	Portugal...........................	1
	Switzerland........................	1

PRIZES AWARDED TO JOURNEYMEN, OVERSEERS AND WORKMEN.

France.............................. 16

PRIZES TO CANADA.

Second Class Medal..	Mrs. McCulloch, of Montreal, for a collection of stuffed birds from Canada.
Honorable Mentions..	Mr. Croft, of Toronto, for officinal preparations. Mr. Lyman, of Montreal, for officinal preparations.

THIRTEENTH CLASS.

Naval and military arts, comprising the principal elements of the materials used in Ship-building, and of the art of navigation, swimming apparatus, life-boats and diving-bells, drawings and models of ships, boats, &c., used on rivers, canals and lakes, and in commerce and deep sea fishing, drawings and models of vessels of war and military engineering, materials of war and military equipage, equipment of troops, arms and projectiles, pyrotechnics.

Large Medals of Honor	France..............................	3
	United Kingdom......................	1
	Belgium.............................	1
	Prussia.............................	1
Medals of Honor....	France..............................	7
	Belgium.............................	3
	Prussia.............................	2

Other Prizes	France and her Colonies	147
	United Kingdom and Colonies	32
	Belgium	28
	Austria	9
	Prussia	9
	Sweden and Norway	7
	United States	7
	Zollverein	5
	Switzerland	5
	Netherlands	4
	Spain	3
	Greece	1
	Tuscany	1
	Ottoman Empire	1
	Denmark	1
	Portugal	1

PRIZES AWARDED TO JOURNEYMEN, OVERSEERS AND WORKMEN.

Large medal of honor to Mr. Dupuy de Lôme, of Paris.

Other Prizes	France	41
	Austria	2

PRIZES TO CANADA.

First Class Medal.... Mr. Lee, of Quebec, for models of steam and sailing vessels.

Second Class Medal..—Mr. Cantin, of Montreal, for boat oars.

Honorable Mention .. Captain Thomas of Toronto, for a model of a life-boat.

FOURTEENTH CLASS.

Civil Engineering comprising building materials, the divers branches of work connected with building, foundations, works in connexion with marine navigation, roads and railways, bridges, distribution of water and gas, special buildings.

Large Medals of Honor	United Kingdom	2
	France	1
Medal of Honor	France	1

Other Prizes........	France and her Colonies................	209
	United Kingdom....................	37
	Prussia	15
	Belgium	14
	Sweden and Norway..................	13
	Austria	9
	Tuscany	8
	Zollverein	6
	Sardinia	5
	States of the Church..................	5
	Switzerland	4
	Spain..............................	4
	Netherlands.........................	3
	Greece............................	2
	Portugal	1
	Tripoli............................	1
	Denmark	1
	Switzerland.........................	1
	United States........................	1

PRIZES AWARDED TO JOURNEYMEN, OVERSEERS AND WORKMEN.

Large medals of Honor to Messrs. De Montricher, Poirée and Vicat, of France.

Other Prizes	France..........	65
	Belgium..........................	10
	Austria...........................	2
	Prussia	1

PRIZES TO CANADA.

First Class Medals ..
- Public WorksOffice, for models and materials.
- Geological commission, for building materials.
- Mr. Ostell, of Montreal, for wooden doors and window sashes.

Second Class Medal to Mr. Brown, of St. Catherines, for building materials.

Honorable Mentions .
- Shipton Slate Company, for slates.
- Hamilton International Company, for asphalt.
- Mr. Gauvreau, of Quebec, for Quebec hydraulic cement.

FIFTEENTH CLASS.

Steel and its products comprising the manufacture of steel for the market, manufacture of special kinds of steel, springs, cutlery, steel tools, various steel manufactures.

Large Medals of Honor.	France	1
	United Kingdom	1
	Prussia	1
Medals of Honor	United Kingdom	3
	France	2
	Austria	2
	Prussia	2
	Wurtemburg	1
Other Prizes	France and her Colonies	125
	Austria	60
	Prussia	57
	United Kingdom and Colonies	54
	Switzerland	8
	Zollverein	6
	Sweden and Norway	6
	Belgium	5
	Tuscany	2
	Denmark	2
	Spain	1
	Portugal	1

PRIZES AWARDED TO JOURNEYMEN, OVERSEERS AND WORKMEN.

France	26
Austria	12
Prussia	9
Belgium	2

PRIZES TO CANADA.

Second Class Medals.	Mr. Scott, of Montreal, for tools.
	Mr. Higgins, of Montreal, for axes.
	Mr. Parkyn, of Montreal, iron shovels.
Honorable Mentions	Mr. Date, of Galt, for tools.
	Mr. Dawson, of Montreal, for planes.
	Mr. Wallace, of Montreal, for planes.

SIXTEENTH CLASS.

General metal work, comprising elaboration of metals and alloys, wires, large tubes, copper ware, sheet iron, tin ware, metal wire work, ironmongery and nail-making, locksmith's work and hardware, zinc work, lead work, tin work and various white alloys, precious metals.

Large Medals of Honor.	Belgium	1
	Prussia	1
Medal of Honor.—France		5
Other Prizes	France and her Colonies	180
	Prussia	56
	United Kingdom and Colonies	55
	Zollverein	35
	Austria	30
	Belgium	29
	Sweden and Norway	6
	Netherlands	4
	Tuscany	4
	Switzerland	3
	Portugal	3
	Denmark	3
	Turkey	1

PRIZES AWARDED TO JOURNEYMEN, ONERSEERS AND WORKMEN.

France	53
Belgium	17
Austria	7
Prussia	3
Zollverein	1
Tuscany	1

PRIZES TO CANADA.

Honorable Mentions .
- Mr. Peck, of Montreal, for nails.
- Mr. Jones, of Gananoque, for iron instruments.
- Mr. Parkyn, of Montreal, for iron instruments.
- Mr. Rice, of Montreal, for tin.

SEVENTEENTH CLASS.

Goldsmith's and silversmith's work, jewellery, bronzes, comprising processes used in goldsmith's work, cutting and engraving of stones used in jewellery, manufactures of precious metals, plated goods, jewellery, imitation jewellery, jewellery made of various metals, statues, bronzes.

Large Medals of Honor—France		2
Medals of Honor	France	11
	United Kingdom	3
	Prussia	2
	Netherlands	1
	Spain	1
Other Prizes	France and her Colonies	187
	Prussia	18
	United Kingdom and Colonies	15
	Austria	11
	Switzerland	9
	Spain	6
	Zollverein	6
	Sweden and Norway	5
	States of the Church	4
	Belgium	4
	Netherlands	4
	Denmark	2
	Naples	1
	Tuscany	1
	Portugal	1
	States of Spanish America	1
	Tunis	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN.

Large Medal of Honor to Mr. Vechte of Paris.

Other Prizes	France	81
	United Kingdom	16
	Prussia	9
	Austria	5
	Belgium	2
	States of the Church	1
	Netherlands	1

No prizes awarded to Canada in this class.

EIGHTEENTH CLASS.

Glass and pottery comprising general processes used in making glass and pottery, window glass and mirror glass, bottle glass, crystal glass, crystal, &c., for optical instruments, ornaments, common pottery and terra cotta, faience, stone ware, porcelain, artistical objects.

	France	3
	United Kingdom	1
LargeMedals of Honor.	France	4
	Austria	1
	Prussia	1
	Belgium	1
	Bavaria	1
Medals of Honor....	France and her Colonies	154
	Austria	25
	United Kingdom and Colonies	25
	Belgium	15
	Prussia	13
	Zollverein	6
	Netherlands	4
	Sweden and Norway	4
	Tuscany	2
	Switzerland	2
	Portugal	1
	Denmark	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN.

France	47
United Kingdom	19
Austria	8
Belgium	6
Prussia	4
Denmark	3
Spain	1
German States	1
Tuscany	1

No prizes to Canada in this class.

NINETEENTH CLASS.

Cotton manufactures comprising the materials used in the manufacture of cotton, raw cotton, prepared and spun pure cotton, fabrics, plain, pure cotton fabrics, figured, pure cotton fabrics for special purposes napped, light cotton fabrics, pure cotton fabrics, manufactured with coloured threads, pure cotton fabrics, printed, cotton velvet, mixed fabrics, cotton ribbons.

Large Medals of Honor.	United Kingdom	2
	France	1
Medals of Honor	France	3
	Switzerland	2
	United Kingdom	1
	Prussia	1
Other Prizes	France and her Colonies	192
	Switzerland	32
	United Kingdom	21
	Belgium	21
	Austria	18
	Prussia	9
	German States	5
	Portugal	2
	Sweden and Norway	2
	Tuscany	2
	Netherlands	2
	Denmark	1
	Spain	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN.

France	85
Switzerland	6
Belgium	5
Netherlands	1

No prizes awarded to Canada in this class.

TWENTIETH CLASS.

Woollen and worsted manufactures, comprising illustrations of the processes, raw wool, hair and bristles, prepared and dyed, woollen yarn plain and twisted, bleached or unbleached dyed in grain or in piece, with or without a mixture of cotton, silk, &c., fabrics of carded wool milled, carded wool fabrics not milled or only slightly milled, combed wool fabrics, combed or carded wool fabrics mixed with cotton, combed or carded wool mixed with silk, floss silk, cotton, woollen shawls, cashmere shawls, horse hair fabrics.

Large Medals of Honor.	France	7
	United Kingdom	1
	Belgium	1
Medals of Honor	France	7
	Austria	3
	Prussia	3
	United Kingdom	2
Other Prizes	France and her Colonies	288
	Prussia	112
	Austria	59
	United Kingdom	39
	German States	30
	Belgium	24
	Spain	9
	Sweden and Norway	6
	Portugal	5
	Netherlands	4
	China	2
	Sardinia	1
	States of the Church	1
	Turkey	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN,

France	232
Belgium	52
Austria	16
German States	19
United Kingdom	1

No prizes to Canada in this class.

TWENTY-FIRST CLASS.

Silk manufactures comprising the preparation of the silk, raw and thrown silk, plain fabrics and pure silk, fabrics of pure silk, figured, brocaded or with pattern, velvet and plush, fabrics for furniture, hangings and church decoration, fancy silk fabrics, mixed with gold, silver, cotton wool, flax, in which silk is the principal material, fabrics made of pure or mixed floss silk, silk ribbons.

Large Medals of Honor	France	6
	Lombardy	1
	Piedmont	1
Medals of Honor	France	25
	Austria	2
	Prussia	2
	Switzerland	2
	United Kingdom	1
Other Prizes	France and her Colonies	253
	Switzerland	68
	Austria	65
	Prussia	35
	Sardinia	34
	United Kingdom and Colonies	24
	Tuscany	20
	States of the Church	11
	Spain	10
	Greece	7
	Ottoman Empire	6
	Portugal	6
	German States	4
	Belgium	4
	States of Spanish America	3
	Sweden and Norway	2

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN.

France	51
Austria	11
United Kingdom	4
Prussia	4
Belgium	1

No prizes to Canada in this class.

TWENTY-SECOND CLASS.

Flax and hemp manufactures, comprising the preparation of flax and hemp, flax, hemp and other vegetable fibres raw and prepared, thread from flax, hemp and other fibres, sail cloth and other coarse cloths, fine cloths and ticking cambrics, damasked and diapered fabrics, flax mixed with cotton or silk, fabrics made from other vegetable fibres than flax and hemp.

Large Medals of Honor	France	1
	Ireland	1
Medals of Honor	Belgium	4
	France	2
	United Kingdom	1
	Prussia	1
Other Prizes	France	129
	Belgium	48
	Austria	32
	Prussia	32
	United Kingdom	26
	German States	16
	Netherlands	4
	States of the Church	2
	Portugal	1
	Spain	1
	Switzerland	1

No prizes to journeymen, &c., or to Canada in this class.

TWENTY-THIRD CLASS.

Hosiery, carpets, embroidery, lace of every kind, gold and silver fringes, comprising all articles of these different classes manufactured of silk, floss silk, wool, horse hair, thread and cotton.

Large Medals of Honor	France	4
	Belgium	1

Medals of Honor	France	8
	United Kingdom	3
	Belgium	1
Other Prizes	France	289
	United Kingdom and Colonies	59
	Belgium	39
	Austria	31
	German States	22
	Prussia	19
	Sweden and Norway	17
	Switzerland	15
	Spain	10
	Sardinia	9
	Netherlands	7
	Greece	5
	Denmark	4
	Portugal	3
	Tuscany	2
	States of the Church	1
	China	1
	States of Spanish America	1
	Turkey	1
	Tunis	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN.

France	377
Belgium	18
Austria	14
United Kingdom	7
German States	2

PRIZES TO CANADA.

Second class medal to Government of Canada for their collection.

Honorable Mentions:
- Mrs. Jones, of Montreal, for a screen worked in wool.
- Miss Parthenais, of L'Industrie, for embroidery in wool and silk.

TWENTY-FOURTH CLASS.

Furniture and decoration, comprising decorative furniture made of stone, stony substances or in metal, cabinet work for daily use, fancy furniture and decorative articles characterized by the use of costly woods, ivory, shell, by sculpture and inlaid work, furniture of moulded substances, gilt, lacquered, &c., furniture made of reeds, cane, straw, &c., household utensils, upholsters' work, stained paper, stuffs and leather prepared for hangings, blinds, book-binding, &c., decorative painting, fittings for theatres, public ceremonies, &c., church furniture, ornaments and decorations.

Large Medals of Honor	France	3
Medals of Honor	France	3
	United Kingdom	2
	Prussia	1
	Tuscany	1
Other Prizes	France and her Colonies	210
	United Kingdom and Colonies	49
	German States	15
	Belgium	14
	Austria	11
	Prussia	11
	Tuscany	9
	Sardinia	8
	Sweden and Norway	7
	Portugal	6
	Netherlands	4
	States of the Church	4
	Switzerland	3
	Greece	2
	Spain	2
	Denmark	2
	United States	2
	Ottoman Empire	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN.

France	115
Prussia	13
United Kingdom	12

Belgium	10
States of the Church	2
Austria	2
Switzerland	2
Denmark	1

PRIZES TO CANADA.

Second Class Medal...	Mr. Drum, of Quebec, for a chair of waved mapel. Mr. Hilton, of Montreal, for a collection of furniture.
Honorable Mentions..	M. Bevis, of Hamilton, for a mosaic table. Mrs. Widder, of Toronto, for a drawing room chair. Mr. Mac Garvey, of Montreal, for rocking chairs.

TWENTY-FIFTH CLASS.

Articles of clothing, objects of fashion and fancy, comprising materials used in making clothes, buttons, linen drapery, stays, braces and garters, coats and clothes, boots and shoes, gaiters and gloves, hats and caps, hair work, feather and bead head dresses, ornaments, artificial flowers, needle work, fans, screens, parasols, umbrellas, sticks, articles of hardware in wood, ivory and shell, &c. Dressing-cases, inkstands, fancy articles ornamented with ivory, &c., sheaths and manufactures in morocco leather and cardboard, basket work, &c., toys, dolls, wax figures, games of all kinds.

Large Medals of Honor	France	1
	United Kingdom	1
Medals of Honor.....	France	
	Austria	1
	Tuscany	1
	Switzerland	1

Other Prizes	France and her Colonies	506
	United Kingdom and Colonies	136
	Austria	86
	German States	44
	Sweden and Norway	42
	Prussia	39
	Portugal	22
	Belgium	17
	Greece	16
	Switzerland	12
	Tuscany	10
	Spain	10
	Denmark	9
	Ottoman Empire	8
	Sardinia	7
	Netherlands	6
	States of Spanish America	3
	United States	2
	States of the Church	2
	Tunis	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN.

France	286
Austria	30
United Kingdom	17
Belgium	8
German States	6
Switzerland	2

PRIZES TO CANADA.

Second Class Medals...
- Mr. Barbeau, of Quebec, for hunting and riding boots.
- Mr. Henderson, of Quebec, for a beaver pelisse.
- Mr. Mercier, of Quebec, for Indian work.
- The Montreal India Rubber Company.
- Mr. Smith, of Montreal, for a collection of boots and shoes.

Honorable Mentions...	Mr. Mercier, of Quebec, Indian curiosities and furs.
	Messrs. Merryfield & Sheridon, of Toronto, for a collection of boots and shoes.
	Mr. Gauthier, of Montreal, for clothing.
	Messrs. Scanberth & Robinson, of Toronto, for a collection of boots and shoes.
	The Sisters of Providence, of Montreal, for wax work.
	Mrs. Rhodes, of Quebec, for ornamented bark work.

TWENTY-SIXTH CLASS.

Drawing and modelling applied to industry, letter press and copper plate printing; photography, comprising writing, drawing and painting; lithography, autography and stone-engraving, engraving on metal or wood, stereotomy, moulds and stamps, printing.

Large Medals of Honor	France	1
	Austria	1
Medals of Honor....	France	4
	United Kingdom	1
	Prussia	1
Other Prizes........	France and her Colonies	420
	United Kingdom and Colonies	86
	German States	47
	Prussia	29
	Austria	27
	Belgium	18
	Netherlands	8
	Switzerland	8
	Spain	7
	United States	7
	States of Spanish America	6
	Sardinia	6
	Tuscany	5

	States of the Church	5
	Portugal	3
	Greece	3
	Ottoman Empire	3
	Denmark	3

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN.

Large Medals of Honor	France	1
	United Kingdom	1
Other Prizes	France	72
	Austria	6
	German States	6
	Belgium	5
	United Kingdom	1

PRIZES TO CANADA.

Honorable Mentions..
- Miss Cochran, of Quebec, for fruit in wax work.
- Mr. Doane, of Montreal, for photographs.
- Mr. Miller, of Montreal, specimens of book-binding.
- Mr. Palmer, of Toronto, specimens of daguerreotypes.
- The Sisters of Providence of Montreal, fruits in wax work.
- Mr. Young, of Montreal, specimens of book-binding.

TWENTY-SEVENTH CLASS.

Manufacture of musical instruments, comprising wind instruments in wood, horn, ivory, bone, shell, leather and metal; wind instruments with key-boards, stringed instruments, without key-boards, pulsatile instruments, automaton instruments, manufactured articles and accessories.

Large Medals of Honor	France	4
	Bavaria	1

Medal of Honor	France	5
Other Prizes	France	117
	Austria	22
	German States	7
	Belgium	6
	United Kingdom	4
	Prussia	4
	Switzerland	3
	United States	3
	Denmark	2
	Netherlands	1
	States of the Church	1
	Spain	1
	Tuscany	1
	Sardinia	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN.

France	29
Austria	4
Belgium	4
Prussia	2
United Kingdom	1

NO PRIZES TO CANADA IN THIS CLASS.

To complete the number of all the prizes awarded in the arts, we must add the special prizes given exclusive of the classes; those awarded by a mixed Commission in the branches comprised in classes X, XIX, XX, XXI, XXII, and XXIII united, and above all the prizes awarded in the additional class XXXI, established during the exhibition, for cheap articles of the descriptions most useful to the poorer and middle classes of society.

SPECIAL PRIZES EXCLUSIVE OF CLASSES.

Large Medals of Honor	France	2
	United Kingdom	1
Medals of Honor	United Kingdom	1
	Portugal	1
	Tuscany	1
	Cuba	1
	Netherlands	1
	British India	1

PRIZES GRANTED BY A MIXED COMMISSION OF CLASSES X, XIX, XX, XXI, XXII AND XXIII.

Large Medals of Honor	France	4
Medals of Honor	France	6
	United Kingdom	2
Other Prizes	France and her Colonies	59
	Unided Kingdom and Colonies	31
	Austria	8
	Switzerland	6
	Prussia	5
	United States	2
	Denmark	1
	Netherlands	1

THIRTY-FIRST CLASS, ADDITIONAL.

Domestic economy comprising cheap articles of food, building, furniture and clothing.

Large Medal of Honor.	France	1
Medals of Honor	France	5
	Austria	1
Other Prizes	France and her Colonies	207
	Prussia	17
	Austria	15
	United Kingdom and Colonies	11
	Portugal	9
	German States	5
	Sardinia	4
	Belgium	3
	Spain	1
	United States	1

PRIZES AWARDED TO OVERSEERS, JOURNEYMEN, AND WORKMEN.

France	9
United Kingdom	2
Belgium	1
Prussia	1

PRIZES TO CANADA IN THE TWENTY-SECOND CLASS.

Second Class Medals. { Mr. Idler of Montreal, for preserved m
Mr. Smith of Montreal for boots and shoes.

Honorable mention.... { Mr. Cross of Montreal, for cheese.

RECAPITULATION.

Grand total of the paizes awarded to each Country, exclusive of the categories of the Large Medals of Honor and Medals of Honor.*

France and her Colonies	7,763
United Kingdom and Colonies†	1,326
Austria	1,012
Prussia	724
Belgium	616
German States	475
Switzerland	293
Sweden and Norway	263
Portugal	235
Spain	150
Sardinia	132
Netherlands	121
Tuscany	116
United States	75
Greece	66
Denmark	62
States of Spanish America	49
States of the Church	43
Ottoman Empire	34
Tunis	4
China	3
Sicily	2
Tripoli	1

* All these numbers and those preceding have been copied with care from the lists of the International Jury, and revised with minute attention.

† With regard to France and England, and especially the latter, the Colonies form a considerable amount in the total.

REPORT

OF

SIR W. E. LOGAN.

TORONTO, 3rd April, 1856.

SIR,—Having returned to Canada after the performance of the duties assigned to me in conjunction with Mr. J. C. Taché, as one of the special Commissioners to the Paris Industrial Exhibition, and brought with me the various medals awarded to the contributors of the collection of products sent from the province, I have the honor to inform you that these have been placed in the hands of the Provincial Secretary for safe-keeping, until such time as it shall please His Excellency the Governor General to order the distribution of them among those for whom they are finally intended.

These medals consist of one grand medal of honor, one medal of honor, thirteen first class and thirty second class medals. In addition to the names of the contributors to whom the medals were decreed, those of forty-three contributors appear in the official list as rewarded by an honorable mention; but beyond the publication in the official list there are no diplomas or documents of any kind connected with them.

In the official list of prizes published in France at the time of the distribution of the medals, nothing more is registered than the name of the contributor, the class comprehending his contribution, and the country from which it comes. A copy of this as relates to Canada, I now transmit to you; and you will perceive that, with no other official document as a guide, it would be impossible, without great liability to error, to state the grounds on which the awards have been made, or frame any report, comparing Canadian contributions with those of other countries, or putting forth what might be considered the general results of the Exhibition. This can only be done after the final reports of the juries have reached this country, and these were not expected to issue from the press sooner than three months from the time of my departure from Paris, towards the end of December.

They were at that time being framed, but no access was permitted to to them or to the bases on which they were founded, except to members of the juries, and no juror was allowed to examine more than the documents of the class to which he was attached. The only juror especially connected with Canada, was Mr. Hunt, of the geological survey, who was appointed by Prince Napoleon to the first-class—that including mineral products. All the facts relating to the proceedings of the jury on this class

are in his possession, and he is engaged in preparing a report which will embody such details regarding the applications of Canadian minerals as have been suggested by the opportunities and experiences afforded him by the Exhibition.

Accompanying this I transmit to you also a statement shewing how the Canadian collection has been disposed of since the close of the Exhibition, some of it having been presented to various institutions in Paris connected with the French government, part of it sold, some portion returned to Canada, and the remainder deposited in the Sydenham palace to form the nucleus of a collection of Canadian products, which the Canadian government, accepting an offer of space from the Directors of that institution, are disposed to place there, and to make worthy at once of the province, and of the building in which the collection will be displayed.

In addition to the foregoing documents, I hand you a statement of monies paid and received, by which you will observe there is a balance against me of (£6 19s. 3d. cy.) six pounds, nineteen shillings and three pence.

I have the honor to be,

Sir,

Your most obedient servant.

W. E. LOGAN.

To W. Rhodes, Esq., M. P. P.,

Chairman of the Executive Committee,

of the Paris Exhibition Commission.

LIST OF PRIZES AWARDED TO CANADIAN EXHIBITORS AT THE PARIS INDUSTRIAL EXHIBITION OF 1855.

Class I.

Grand Medal of Honor,..........W. E. Logan,—Canada.

Class II.

Medal of Honor,...................Canada.
1st Class Medal, ...Hudson Bay Co.,—Lachine.
A. Dickson,—Kingston.
2nd Class Medal,................. Farmer & DeBlacquière,—Woodstock.
G. Sharples,—Quebec.

Class III.

1st Class Medal, ...Canada Company,—Toronto.
G. Cross,—Montreal.
W. C. Lyman & Co.,—Montreal.
A. Shaw,—Toronto.
A. Perry,—Montreal.
2nd Class Medal,..... ....J. Fisher,—Montreal.
J. Fleming,—Toronto.
D. Laurent,—Varennes,
L. Morse,—Milton.
A. Shaw,—Toronto.
G. Sheppard,—Montreal.
R. Wade,—Cobourg.
Honorable Mention, ...A. Coffin,—Gaspé.
W. Evans,—Montreal.
A. Kimpton,—St. Thèrèse.
W. F. Jarvis,—Toronto.
Abbe Villeneuve,—Montreal.

Class IV.

1st Class Medal,..................George Perry,—Montreal.
Honorable Mention, ...L. Lemoine,—Quebec.

Class V.

Honorable Mention, ...G. Barrington,—Montreal.

Class VI.

1st Class Medal,..................W. Rodden,—Montreal.
2nd Class Medal,..................D. Munro,—Montreal.
B. P. Page,—Montreal.
Honorable Mention, ...P. Dunn,—Montreal.
Dion & Lepage,—Rimouski.
W. H. Rice,—Montreal.

Class IX.

2nd Class Medal,..................W. Rodden,—Montreal.

Class XI.

2nd Class Medal,..................Clark Fitts,—Montreal.
Government of Canada.
Honorable Mention, ...E. Lawson,—Montreal.
J. McDougall,—Montreal.
J. D. Proctor,—Montreal.
J. Robb,—Montreal.

Class XII.

2nd Class Medal,... ....Mrs. McCulloch,—Montreal.
Honorable Mention, ...H. Croft,—Toronto.
Wm. Lyman & Co.,—Montreal.

Class XIII.

1st Class Medal,..................T. C. Lee,—Quebec.
2nd Class Medal,..................A. Cantin,—Montreal.
Honorable Mention, ...Captain Thomas,—Toronto.

Class XIV.

1st Class Medal, ...Board of Works,—Quebec.
Geological Survey of Canada,—Montreal.
J. Ostell,—Montreal.
2nd Class Medal,....................J. Brown,—St. Catherines.
Honorable Mention, ...Shipton Slate Co.,—Shipton.
International Mining Co.,—Hamilton.
P. Gauvreau,—Quebec.

Class XV.

2nd Class Medal,....................R. Scott,—Montreal.
J. & J. Higgins,—Montreal.
W. Parkins, —Montreal.
Honorable Mention, ...H. & H. Date,—Galt.
J. Dawson,—Montreal.
W. Wallace,—Montreal.

Class XVI.

Honorable Mention, ...Thos. Peck,—Montreal.
D. T. Jones,—Gananoque.
Wm. Parkins,—Montreal.
W. H. Rice,—Montreal.

Class XXIII.

2nd Class Medal,...................Kingston.*
Honorable Mention, ...Mad. J. Jones,—Montreal,
Mad. P. Partenais,—Industrie.

Class XXIV.

2nd Class Medal,............ .....Wm. Drum,—Quebec.
J. & W. Hilton,—Montreal.

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* This is awarded to the collective contents of a pavilion marked Kingston in which the products of the following contributors were exposed.

Simon Bean, worsted stockings, shawls, blankets and flannels; Madame Colby, worsted stockings, shawls and flannels; Madame Bouchard, worsted thread; Barber Brothers, flannels.

Honorable Mention, ...	J. Bevis,—Hamilton.
	Miss Widder,—Toronto.

Class XXV.

2nd Class Medal, ...	J. Barbeau, Quebec.
	Henderson & Co.,—Quebec.
	Canada India Rubber Co.,—Montreal.
	Indians of Canada.
	Smyth & Co.,—Montreal.
Honorable Mention, ...	D. Mercier,—Quebec.
	Merrifield & Sheridan,—Toronto.
	Mad. Rhodes,—Quebec.
	Scandritt & Robinson,—Toronto.
	Sisters of Providence,—Montreal.

Class XXVI.

Honorable Mention, ...	Miss Cochrane,—Quebec.
	J. C. Doane,—Montreal.
	R. & A Miller,—Montreal.
	T. J. Palmer,—Toronto.
	Sisters of Providence,—Montreal.
	A. Young,—Montreal.

Class XXXI.

2nd Class Medal, ...	E. Idler,—Montreal.
	Smyth & Co.,—Montreal.
Honorable Mention, ...	G. Cross, —Montreal.

STATEMENT

SHEWING THE MANNER IN WHICH THE ARTICLES SENT FROM CANADA TO THE PARIS EXHIBITION WERE DISPOSED OF.

In this Table the designation of the Article is generally preceded by the name of the Exhibitor.

CLASS I.

The collection of minerals in this class was distributed in part to the *Ecole des Mines* at Paris, and the remainder sent to Sydenham Palace. For details upon this class and those that follow we refer to the catalogue.

CLASS II.

Bouchard, Pierre, specimens of maple sent to Sydenham.

Dickson, Andrew, specimens of timber, sent to Sydenham, as also the articles of the same class exhibited by Messrs. Farmer and DeBlaquiere, Gamble, Kennedy, Lavoie, Lévêque, Marmon, Moody, Saint Arnaud, Saint Armand, Sharples, Dubeau, Grant & Hall, Halliday, Lamouche, MacGibbon, and Manning.

Moore, Thomas, Paxton, Jennings and Smith, handles of tools and staves, distributed between the *Conservatoire des Arts at Métiers*, the Austrian Commission, Messrs. Goldenburg of Germany, and Sydenham Palace.

Mercier, David, divers articles sent back to owner.

Hudson's Bay Company, a collection of furs, part sold to the profit of Canada, part presented to the English Commission and the *Jardin des Plantes*, and the remainder sent back to Canada.

Murphy, M., fishing-lines, sold.

Peacock, John, artificial flies for fishing, presented to the *Conservatoire des Arts et Métiers.*

CLASS III.

Evans, W., plan of a Canadian farm, presented to the Imperial School at Grignon.

Bingham, J., an iron plough, sold.

Brough, R., rakes, some presented to the Imperial School at Grignon, and the remainder sent to Sydenham.

Dion & Lepage, large model of a thrashing machine, presented to the Imperial School of Grignon.

Glasford, George, scythes sent to Sydenham,

Jeffries, J., stump and root extractor,

Moody, Matthias, reaping and weeding machines.

Morse, a plough,

Paige, a thrashing machine,

Patterson, a plough.

Rice, a fanner, the foregoing were sold for the benefit of the Committee.

The whole of the collection of seeds and grains (see catalogue) was in part exchanged for seeds and grains from the following countries, viz: France, England, Austria, Portugal, Egypt, Turkey, Tunis, Tuscany, States of the Church, Algeria, Norway and Denmark; part were presented to the *Société Impériale d'acclimitation de France;* to the *Conservatoire des Arts et Métiers;* to the Imperial School of Grignon; to Mr. Vilmorin and other members of the Jury, and the remainder sent to Sydenham.

Perry, Alfred, hickory nuts, sent to Sydenham.

Robertson, wool; Southwick, wool; Corse & May, oil cake; all sent to Sydenham.

Cross, George, cheese, given to the French Exhibition of cheap articles.

Wade, R., cheese, damaged and lost.

CLASS IV.

Ladd, C. P., scales, sent to Sydenham.

Rodden, scales, sent to Sydenham. Some articles from this contributor were sold to his profit, as they were his private property.

Fergusson, W. J., hose and pipe, sent back to Canada.

Lemoine, Louis, fire engine, do. do.

Perry, George, fire engine, sold to English Government.

CLASS V.

Archambault, André, harness, sent to Sydenham.
Barrington, George, do., sold.
Combs, John, hames, sent to Sydenham.
Couvrette, Magloire, do. do.
Dean, Robert, leather portmanteau, sold.
Edward, W. R., saddles, sent to Sydenham.
Morris, Robert, harness, sent to Sydenham, leather portmanteau sold.
Trelkeld, I, collection of whips, sent to Sydenham.
Wiltse, Joseph, yoke, sold.
Gingras, Edward, a carriage, sent to Sydenham.
Leduc, Clovis, do. sold.
Saurin, Joseph, a sleigh, sent to Sydenham.
Holland, M., railroad spikes, sent to Sydenham.

CLASS VI.

Dean, Robert, a portable forge, sold.
Lindlay, C., do. do. do.
Helme and Wade, boring machine, sent to Sydenham.
Ladd, C. P., flour mill, sent to Sydenham, sold.
MacLellan, a mortising machine ; Munro, a planing and grooving machine ; Parsons, a brick making machine ; Rodden, cabinetmakers' machine ; planing machine ; trenail making machine ; Dunn, a machine for making nails, all sold.

CLASS VII.

Brough. R., Spinning jennies ; Taylor and Dockrill, a sewing machine, all sent to Sydenham.

CLASS VIII.

Hearn and Potter, an engineers' level, sent back to Canada.
Keefer, Thomas C., a topographical map of Canada, sent back to Canada.
Tanguay, L'Abbé, fossil bones, being a private contribution, were sent back to the owner.

CLASS IX.

Scobell, I., pressed turf, sent to Sydenham.
Ladd, C. P., an iron coffin, do. do.
Macklin, O. S., a stove, sold in a damaged state.
Prowse, G. F., a refrigerator, sent to Sydenham.
Rodden, W., a kitchen stove, sold.
Lyman, W., sponge, sent to Sydenham.
Piper Bros., lanterns for locomotives, sent to Sydenham.
Tetu, C. H., fish oil of different descriptions, part sent to Sydenham, and part furnished by Mr. Taché to the firm of Levasseur, at Paris, as samples.

CLASS X.

Brennan, Patrick, potash, sold.
Carr, I., glue, sent to Sydenham.
Lyman, W., alcaline salts, sold.
MacFarland, Archibald, glue, sent to Sydenham.
Townsend, T. W., chemical preparations, sent to Sydenham.
Archambault, A., leather varnish, sent to Sydenham.
Fisher, J., vegetable oil, sent to Sydenham.
Fox, C. J., neats' foot oil, sent to Sydenham.
Hearle, J. G., toilet soaps, sold.
Keefer, T. C., porpoise oil, given for samples.
Laflamme, A., oil cloths, sent to Sydenham.
Lepage and Lévêque, porpoise oil, part given by Mr. Taché for samples, and the remainder sent to Sydenham.
Lyman, S., wax, sent to Sydenham.
Lyman, W., animal and vegetable oils, sent to Sydenham.
Montreal India Rubber Co., boots and shoes, part sold, and part sent to Sydenham.
Houghton and Wallace, leather, sold.
Maclin, O. S., leather, sold.
Têtu, C. H., porpoise leather, in part given for samples, and the remainder sent to Sydenham.
Valois, Narcisse, tanned and dyed leather, sold.
Andres, S. R., paper made from the plant Gnaphalium, given to the *Conservatoire des Arts et Métiers.*
Gingras, Pierre, dyed martin furs.

Lyman & Co., plants for dyeing in part, sent to the Imperial Manufactory of Gobelins, and the remainder sent to Sydenham.
Taché & Michaud, mineral paints, sent to Sydenham.
Marmette, Dr., tobacco, sent to Sydenham.

CLASS XI.

Gamble, W., flour of different qualities, sold.
Fitts. Clarke, biscuits, sold.
Lacombe, Mrs., potato starch, given for samples.
Lawson, Edward, flour and biscuits, sold.
MacDougall, J., wheat flour, sold.
Nasmith, John, biscuits, sold.
Platt, Samuel, flour, sold.
Proctor, J. D., Indian meal, sold.
Thomas, Richard, buckwheat flour, sold.
Gasse, Louis, maple sugar, given to a chemist to be analysed.
Redpath, J., maple sugar, sold.
Taylor, Jas., maple sugar, sold.
Valois, Narcisse, maple sugar and syrup, given to be analysed.
Ashton, J. P., pickles, sold.
Bauden, J. & W., bear hams given to the Jury.
Crawford, W., mustard, sold.
Idler, E., preserved meats, given.
Leonard, P., chicory, sent to Sydenham.
Mochrie, George, preserved meats, sold.
Moyer & Keating, dried fruits, part given to the Jury, and the remainder sent to Sydenham.
Shaw, Alexander, chicory, sent to Sydenham.
Southwick, M. B., preserved meats and vegetables, given to the Jury.
Thomas, Richard, sausages, withdrawn from the Exhibition on account of being damaged.

CLASS XII.

Ardouin, A., collection of medicinal plants used for dyeing, part presented to the Imperial Manufactory of Gobelins, and the remainder sent to Sydenham.
Groft, H., pharmaceutical preparations, sent to Sydenham.
Giroux, Olivier, medicinal plants and vegetable gums, sent to Sydenham.
Lespérance, Joseph, cod liver oil, sent to Sydenham.
Booth, J., stuffed animals, presented to the *Jardin des Plantes*.

Kennedy, D., skins of Canadian birds, part given to the *Jardin des Plantes*, and part to the British Board of Trade.

MacCulloch, Mrs., collection of Canadian birds, belonging to the exhibitor, sent back to owner.

CLASS XIII.

Clark, J., pulleys, sent to Sydenham.

Hood and Brothers, brace, presented to the *Conservatoire des Arts et Métiers.*

Macgregor, A. & D., collection of ropes, sold.

Sohier, G., figure-head for a vessel, left in the Trophy of the English Navy.

Ash, Lieutenant, model of a safety raft, sent to Sydenham.

Thomas, Captain, do do do do.

Hudson, Captain, model of a safety steamer, sent to Sydenham.

Cantin, A., oars, presented to the Minister of Marine and Colonies in France.

Lee, Thomas, models of clippers and steamers, sent to Sydenham.

CLASS XIV.

All the building materials belonging to this class were given partly for bridges and locks in France, and the remainder sent to Sydenham.

Ostell & Co., wooden doors, windows, blinds, and other articles, divided between the French Exhibition of cheap articles and Sydenham Palace.

Board of Public Works, models of locks and bridges, sent to the *Conservatoire des Arts et Métiers.*

Grand Trunk Railroad Company, model of Victoria Bridge, sent to Sydenham.

Thomas, W., architectural drawings, sent to author. Model of General Brock's monument, presented to the relations of General Brock in Jersey.

CLASS XV.

The tools forming the collection in this class were for the most part sold; the remainder were divided between the *Conservatoire des Arts et Métiers*, Sydenham Palace and the Austrian Commission.

CLASS XVI.

Rodden, W., fancy castings, given to the *Conservatoire des Arts et Métiers.*

Rice, H., wire cloth, sent to Sydenham.
Peck, Thomas & Co., nails, sent to Sydenham.

CLASS XVII.

Bohle & Hendery, plated ware, sold for the weight of metal.

CLASS XVIII.

Spence, J. C., stained glass, sent to Sydenham.

CLASS XX.

The greater part of the woollen fabrics and other materials forming the collection in this class were sent back to Canada, with the following exceptions, viz.:

Carr, J., hair sent to Sydenham.
Bean, Simon, a shawl and other articles in wool, given on the premises: part of the flannel was sold and the remainder sent to Canada.
Bouchard, Mrs., worsted articles, sent to Sydenham.
Colby, Mrs., a shawl, sold; some articles given to the persons employed on the premises, and the remainder sent to Canada.

CLASS XXII.

Sisters of Charity, thread, given to the Jury.
Bouchard, Mrs., needle work and Canadian cloth, sent to Canada.

CLASS XXIII.

Ebenezar, S., worsted gloves, sent back to Canada.
Harper, Mrs., worsted stockings, sold.
Moore, Mrs. do do do.
Musson, Mrs. do do do.
Silverthorn, Mrs., counterpanes, do.
Stiffel, Mrs., do do.
Langevin, Mrs., table cover, do.
Vencelow, Mrs., do do sent back to Canada.
Senkler, Misses, needle work, sent back to Canada.

CLASS IV.

Bevis, J., centre table, sold.
Hilton, J. & W., sofa and chairs, sold.
MacGarvey, Owen, rocking chairs, one given to Mr. Maitland, the remainder sold.
Drum, chair of curled maple, sold.
Rhodes, Captain, chairs covered with moose skin and worked with moose hair, sold.
Spence, J. C., work-table, sent to Sydenham.
Widder, Miss, a devotional chair, private contribution, sent back.
Cushing, Mrs., fancy frame, sold in a damaged state.
Hare, Albert, do do do.
Boyd, John, brushes, sold.
Jenking, Thomas, brushes and leather, sent to Sydenham.
Davis, Mrs., worsted embroidery, sold.

CLASS XXV.

Smiley, Robert, shirts, sold.
Gauthier, Edward, dresses of *étoffe du pays*, sold.
Henderson & Co., beaver skin coat, sold.
Wheeler, Thomas, feather cape, sent back to Canada.
Barbeau, Joseph, hunting and other boots, sent to Sydenham.
Eckart, Isaac, snow shoes and Esquimaux boots, sent to Sydenham.
Fisher, Mrs., moose skin gloves, private contribution.
Mercier, David, Huron Chief's dress, sent back to owner.
Merryfield & Sheridan, shoes, part sold, and remainder sent to Sydenham.
Pollard, Mrs., embroidered leggings, sent back to Canada.
Price, David, embroidered moccasins, private property.
Scandritt & Robinson, boots, sent to Sydenham.
Smith & Co., boots and shoes, part sold and remainder sent to Sydenham.
Taché, J. C., moccasins, soled with india rubber, private contribution.
Couture, Mrs., straw hats, sent to Sydenham.
Martel, Mrs., do sold.
Martel, Miss, do do.
Ranger, Mrs., do sent to Sydenham.
Jones, Mrs., screen embroidered in wool, sent to Canada.
Parthenais, Miss, embroidery in wool, sent to Canada.
Malo, L'Abbé, Indian curiosities, private property; sent back to owner.
Jones, Peter, Indian curiosities, sold.

Mercier, David, Indian work, private contribution, sent back to owner.
Rhodes, Mrs., embroidery on bark, sold.
Tanguay, L'Abbé, Indian curiosities, sent back to owner.

CLASS XXVI.

Armstrong, W., water colour drawings, sent back to Canada.
Shepherd, Miss, drawings of Canadian fruits and vegetables, sent to Sydenham.
Tully, Kivas, architectural drawings, sent back to Canada.
Whitfield, lithographed drawings of Canadian towns, sent back to Canada.
Doane, J. C., photographic portraits, sent back to Canada.
Palmer, J. E., do do do do do.
Cochrane, Miss, wax fruit, presented to the *Conservatoire des Arts et Métiers.*
Sisters of Providence, do do do do do.
Wheeler, J., seal engraving sent back to Canada.
Rose, specimens of photography, do do.
Salter & Ross, do do do do.
Smith, do do do do.
Starke & Co., do do do do.
De Puibusque, Adolphe, book binding in porpoise leather, sent back to owner.
Mackay, Mrs., specimens of book-binding, sent to Sydenham.
Miller, R. & A., do do do do.
Young, A., do do do do.

CLASS XXVII.

Hood, T. D., piano-forte and sounding board, sent to Sydenham.

CLASS XXVIII.

Kane, Paul, oil painting, the property of Mr. Allan, sent back.
Ryland, J. H., oil paintings sent back to owner.

Account of Monies received for various Articles sent to the Paris Industrial Exhibition.

Maker's Name.	Articles.	Purchaser.	£ s. d.	£ s. d.
Moody	Horse rake	Carl Burman	2 10 0	
	Clover cleaning machine	Do	7 10 0	
	1 ox yoke	Do	0 15 0	
				10 15 0
Rodden	Cooking stove	M. Lemoine, St. Du		7 10 0
Morse	Plough	Count de Salzburg		5 0 0
McGarvey	1 rocking chair	P. Scholoss	0 10 0	
	1 turning do	Do	0 12 6	
				1 2 6
Henderson & Co	Beaver and cloth reversible coat	M. Toussant		17 10 0
	1 pair caoutchouc boots	M. Lalen		0 15 0
Paige	Threshing machine	P. Thenard		65 0 0
Smith	1 pair shoes	W. Pavey	0 6 7½	
	2 pairs Indian rubber shoes	Do	0 12 0	
Rice	Fanner	Do	7 10 0	
Jeffrey	Grubber	Do	6 0 0	
Leduc	Carriage	Do }	100 0 0	
Barrington	Harness	Do }		
				114 8 7½
Kennedy	4 bird skins	Prince Bonaparte		1 0 0
Hudson's Bay Company	4 Lynx skins at 18s	M. Chenet		3 12 0
Mrs. Cushing	Gilt toilet frame	Do		0 5 6
	1 pair India rubber boots	M. Fremont	1 5 0	
Smith	1 pair boots	Do	1 5 0	
	1 pair India rubber shoes	Do	0 6 0	
				2 16 0
Rodden	Cabinetmaker's bench	D. V. Douario	100 0 0	
Ladd	Turning lathe	Do	65 0 0	
				165 0 0
Munro	Planing machine	Q. Tumois	140 0 0	140 0 0
Bingham	Iron plough	Ecole Rignole		5 0 0
Gaulin	Etoffe du pays coat	E. Boynes	2 10 0	
Mrs. Suffel	Counterpane	Do	2 0 0	
Bouchard	Shawl	Do	1 2 0	
				5 12 0

Hudson's Bay Company	12 Martin skins	M. Delasse		24 0 0
Houghton and Wallace, Macklin, Valois	Leather	M. Fleury		20 0 0
Hilton	Sofa and 6 chairs	L. Bunn	60 0 0	
Dean	Portmanteau	Do	2 0 0	
Rhodes	2 fancy chairs	Do	6 0 0	
Beri	Centre table	Do	25 0 0	
Hare	Toilet mirror and gilt frame	Do	2 10 0	
Rhodes	4 Birch bark boxes	Do	2 0 0	97 10 0
Parsons	Brick making machine	M. Farrier		5 0 0
Smith	1 pair shoes	R. Romain		0 16 0
Drum	1 fancy chair	E. Gower		3 0 0
Rodden	Planing machine	W. Conaly	60 0 0	
Hudson's Bay Company	24 Muskrats skin	Do	1 3 0	
	Old curtains	Do	10 0 0	
Dean	Portable forge	Do	7 10 0	
Lindsay	Do do	Do	7 14 0	
	2 Fox skins	Do	1 14 0	
Mrs. Jones	Pearl embroidery	Do	1 0 0	88 17 0
Hudson's Bay Company	2 Beaver skins	T. Thalcher	1 16 0	
Langevin	A coverlet	Do	0 17 6	
Hudson's Bay Company	1 Beaver skin	Do	0 18 0	
Sylverthorn	1 cotton quilt	Do	2 0 0	
Hudson's Bay Company	2 Beaver cub skins	Do	0 6 0	
Macklin	1 branch and bedroom candlestick	Do	1 10 0	
	Stove	Do	1 15 0	9 2 6
Patterson	Plough	The Emperor		5 0 0
Jefferies	Root cutter	M. Colona		4 0 0
Scott	Tools	M. Goldenberg	18 3 9	
Higgins	Do		1 10 0	
Dates	Do		37 13 0	
Parkins	Shovels		1 10 0	
Jones	Do		3 0 0	
Dawson	Planes		10 5 0	
Wallace	Do		16 0 0	
	1 pair boots		0 5	88 11 9

ACCOUNT OF MONIES RECEIVED FOR VARIOUS ARTICLES, &c.—(*Continued.*)

MAKER'S NAME.	ARTICLES.	PURCHASER.	£ s. d.	£ s. d.
G. Perry	Fire engine	Board of Trade, England	150 0 0	
Fergusson	75 feet of hose	Do do do	15 0 0	
				165 0 0
	4 pair stockings and socks	Sir W. Logan		0 10 6
	A Moore's head	Baron de Reisez Stalbourg		7 10 0
	7½ yards draps du pays	Captain Fowke		3 15 0
	11 dyed Martin skins	Custom Officers		5 0 0
	1 silver Fox skin	Jardin des Plantes		25 0 0
	12 vitrines at £5	Arts et métiers		60 0 0
	3 brooms	M. Bossange		0 3 0
Hudson's Bay Company	1 Lynx and 1 Wolf skin	A. de Puibusque	1 5 0	
	4 chapeaux de foin	Do	0 4 0	
McGarvey	1 rocking chair	Do	0 15 0	
	1 pair woman's Indian rubbers	Do	0 6 0	
				2 10 0
McLellan	Morticeing machine	Earl Grey		40 0 0
Gamble	1 barrel Indian meal		1 0 0	
	1 do groats		2 0 0	
	1 do superfine flour		1 18 0	
	1 do split peas		1 10 0	
	1 do peal barley		2 5 0	
	1 do oatmeal		1 10 0	
	1 do pea meal		2 0 0	
	1 do buckwheat flour		2 10 0	
McDougall	2½ do flour		1 18 0	
Dagg	1½ do oatmeal		0 15 0	
	1 keg lard		2 9 9	
	53 bottles pickles		2 13 0	
	2 boxes maple sugar		4 0 6	
	7 do Toronto biscuit / 8 do Montreal do } 213 lbs. at 6d.		5 9 0	
	1 keg pearl ash		1 0 0	
	1 do pot ash		1 15 0	
	1 do saleratus		1 10 0	
	1 box black walnut		1 0 0	

	A lot of cordage		10 0 0	
	29 lbs. soap at 1s.		1 9 0	
	18 brushes		1 0 0	
	1 keg and 1 bale hops, 80 lbs. at 6d.		2 0 0	
	1 Indian war club, 1 butter bowl, and 1 spoon		2 10 0	
	Hams—gratis			
Smith	3 pair shoes		1 10 0	54 2 0
	1 pair India rubber curling shoes		0 12 6	
Ganter	2 pair trowsers étoffe du pays		1 12 6	
Hudson's Bay Company	2 Otter skins		3 0 0	
	7 yards damaged cloth		1 15 0	
				8 10 0
	Total sold by Mr. Logan			1263 4 4½
	Charged purchasers on account of duty			17 19 10
Dunn	Machine for making nails, sold by Mr. Taché			73 0 0
	Goods sold by Mr. Perry			7 15 6
				1361 19 8½
	Less—Paid for coverage cover		1 0 0	
	For duties, carriage of goods, &c.		47 2 2	
				48 2 2
	Net proceeds		£	1313 17 6½

A SKETCH

OF

THE GEOLOGY OF CANADA.

A SKETCH

OF

THE GEOLOGY OF CANADA

SERVING

TO EXPLAIN THE GEOLOGICAL MAP

AND THE

COLLECTION OF ECONOMIC MINERALS

SENT TO

THE UNIVERSAL EXHIBITION AT PARIS, 1855.

BY

W. E. LOGAN, F. R. S.

Member of the Geological Societies of France and England, Director of the Geological Commission of Canada, &c., &c., &c.

AND

T. STERRY HUNT, A. M.

Member of the Geological Society of France, of the American Academy of Arts and Sciences, Chemist and Mineralogist to the Geological Commission of Canada, Member of the International Jury of the Universal Exhibition at Paris, &c., &c., &c.

(*Translated from the French.*)

PARIS

HECTOR BOSSANGE & SON,

QUAI VOLTAIRE, 25.

1855.

INTRODUCTION.

The commencement of a systematic investigation of the Geology of Canada, dates only from the year 1842. Before this time, however, several efforts had been made by men who appreciated its importance, to establish a commission for the Geological and Minerological examination of the Country, but it was only in 1841 that the Legislative Assembly having voted a sum of £1500 for a geological exploration of the Province, the Governor, Sir Charles Bagot, named in 1842, Mr. W. E. Logan, as Geologist, and Mr. Alexander Murray, as Assistant Geologist, to put the project into execution. The exploration, being thus commenced, was continued under Lord Metcalfe by a second grant of £2000 a year for a period of five years from 1845, and in 1850 the Act was renewed under the administration of Lord Elgin, for a similar period.

The Geological Exploration of Canada presents peculiar difficulties; in old countries where civilization of many centuries has developed the mineral resources of the soil, where mines and quarries furnish every where facilities for studying the nature and arrangement of the different formations, where, finally, the labors of the Topographer have preceded those of the Geologist and given exact maps of the country, geological researches become comparatively easy. But, in a new country like Canada, all these things were wanting; the geologist was obliged to precede civilization, and, penetrating into unknown regions, to point out sources of mineral wealth hitherto unknown, preparing thus the way for the industry of civilized men who shall replace the savages. If we add to all these considerations that a geographical knowledge is an indispensible preliminary to investigations of this nature, it has often been necessary to combine topography with geology, and to make at the same time a geographical and geological map of the country, we may form some idea of the difficulties to be surmounted in the Geological Survey of Canada.

Canada has an area of about 40,000 square leagues; and the researches of Messrs. Logan and Murray, aided by those of Mr. Richardson, have already made known the geology of a great portion of this extent. Ac-

cording to the evidence given before a Committee of the Legislative Assembly, in October, 1854, it appears that the explorations up to that date, comprehended the shores of Lakes Superior and Huron, as well as all the great western basin of Canada, the valley of the St. Lawrence as far as the Gulf, the valleys of the Richelieu, Yamaska, St. Francis and Chaudière, that of the Ottawa and its branches as far as Lake Temiscaming, as well as almost all that part of Lower Canada south of the St. Lawrence, including the district of Gaspé. To these geological labours must be added the topographical surveys of several rivers tributary to Lakes Huron and Superior, of a great part of the Ottawa and its branches, as well as the surveys executed by Mr. Murray upon two lines of exploration between the Ottawa and Lake Huron, and the measurements of the principal rivers of Gaspé. All these topographical labours were only accessary to the Geological Survey, although necessary to its prosecution, and have greatly augmented the task of the Geological Commission.

The Annual Reports of the Geological Survey form at present about 1200 pages in 8vo., summaries of the geological researches of each year, with descriptions of the economic materials met with in the progress of the investigation, as well as researches upon the rocks, minerals and soils of the country, by Mr. C. Sterry Hunt, who has, since 1847, been attached to the Geological Commission in the capacity of Chemist and Mineralogist.

The inevitable expenses in a country where it has been necessary to carry on at the same time topographical and geological investigations, and to organize expeditions into regions still in a state of nature—have been such, that, notwithstanding the liberal sums accorded by the Provincial Government for these researches, it has not been without considerable personal sacrifice on the part of its director, that the Geological Survey has been carried on up to the present time. At the last Session of the Legislative Assembly there was accorded the sum of £2,000 for the publication of a Geological Map of Canada, upon a scale of, $\frac{1}{600,000}$, (having thus a length of more than six feet by a breadth of three feet,) to be accompanied by a condensed summary of all the Reports which have yet appeared. It is proposed, during the continuation of the Survey, to publish each year, besides the annual Report of Progress, a *livraison* of ten plates of the characteristic fossils of the different formations of Canada accompanied by a descriptive text, and also to give geological sections, with a minutely detailed geological Map on a large scale, which will be published in several parts to appear successively.

The geological commission has secured, for the palæontology, the co-

operation of Mr. James Hall, of New York, who will direct the special studies required for the description, and publication of the fossils. This distinguished professor, so well known by his researches upon the geology of the United States, will soon publish a geological map of that country on the same scale as that of Canada, and as Mr. Logan has adopted the divisions established by Mr. Hall, in the palæozoïc rocks of the United States, their combined labours in these adjacent countries will give to the Geology of North America, a unity of plan which will greatly facilitate future geological researches on the American continent. The Map of Canada, which is now being engraved in Paris, will be published before long.

The Canadian government wishing to send to the Universal Exhibition at Paris a series of the economic minerals of the country, Mr. Logan was directed to collect them, and the minerals here exhibited, although in part, exhibited under the names of different individuals, were, with a few exceptions, collected by the personal care of the members of the Geological Commission. In order to indicate the geological relations of these materials, Mr. Logan has exhibited at the same time a map upon a scale of $\frac{1}{900,000}$, upon which he has brought together for the first time all the details of his geological labours; at the same time, as an explanation both of the map and the collection, we have thought proper to give in the little treatise which follows, a short account of the most interesting facts in the geology and mineralogy of Canada. We have added, moreover, a catalogue of the economic minerals of the country, and a small map, on a scale which is one-sixth of that about to be published. The geology of the neighbouring States is taken from the Maps of American Geologists, especially from that of Mr. James Hall.

For the geological facts, and for whatever relates to the physical structure of the country, all is due to Mr. Logan and his geological assistants; the mineralogy, as well as the chemistry of the metamorphic rocks and the mineral waters, is the result of the researches of Mr. T. Sterry Hunt, who has edited this little sketch.

Paris, August 1st, 1855.

SKETCH

OF THE

GEOLOGY OF CANADA.

I

THE LAURENTIDES.

The province of Canada is traversed, through its whole length, by a mountainous region, dividing it into two basins, which may be distinguished as the Northern and the Southern basins. These mountains, which have been named the Laurentides, form the North shore of the St. Lawrence, from the Gulf as far as Cape Tourment, near Quebec; from which point they leave the river, and while they follow its general direction become more and more remote, until near Montreal, they are at a distance of ten leagues from tho St. Lawrence. Going further Westward, this mountainous region follows the line of the Ottawa, and crosses this river near the *Lac des Chats*, fifty leagues from Montreal. Thence taking a Southward direction, it reaches the St. Lawrence near the outlet of Lake Ontario, and from this point running North-westward, the Southern limit of this formation, reaches the South-eastern extremity of Lake Huron, at Matchedash Bay, and forms the Eastern shore of the lake as far as the 47th degree of latitude, where quitting this lake, the formation gains Lake Superior, and extends in a North-west direction to the Arctic Sea.

To the South of the St. Lawrence, this same region covers a considerable space between the Lakes Ontario and Champlain, and constitutes the Adirondack mountains. With this exception and perhaps also a small exposure in Arkansas and another near the sources of the Mississippi, his formation is not found to the South of the St. Lawrence, and as it belongs especially to the valley of this river and constitutes the Laurentide Mountains, the Geological Commission of Canada has distinguished it by the name of the *Laurentian system*.

II

THE LAURENTIAN SYSTEM.

The rocks of this system are, almost without exception, ancient sedimentary strata, which have become highly crystalline. They have been very much disturbed and form ranges of hills, having a direction nearly North-east and South-west, rising to the height of 2,000 or 3,000 feet, and even higher. The rocks of this formation are the most ancient known on the American continent, and correspond probably to the oldest gneiss of Finland and Scandinavia, and to some similar rocks in the North of Scotland.

The rocks of the Laurentian formation are in great part crystalline schists, for the most part gneissoid or hornblendic. Associated with these schists, are found large stratified masses of a crystalline rock, which is composed almost entirely of a lime and soda felspar. This rock is sometimes fine grained, but more often porphyritic, and contains cleavable masses of felspar, sometimes several inches in diameter; these felspars are triclinic, and have ordinarily the composition of andesine, labradorite, anorthite, or of intermediate varieties. Their colours are various, but the cleavable felspars are generally bluish or reddish, and often give colored reflections. Hypersthene is very generally disseminated in these felspathic rocks, but always in small quantity. Titanic iron-ore is also found in them, in a great number of places, sometimes in small grains, but often in considerable masses.

With these schists and felspars are found strata of quartzite, associated with crystalline limestones, which occupy an important place in this formation. These limestones occur in beds of from a few feet to three hundred feet in thickness, and often present a succession of thin beds intercalated with beds of gneiss or quartzite; these latter are sometimes quartzite conglomerates, and have in certain cases a base of dolomite, Associated with these limestones, are sometimes found beds composed in great part of wollastonite and of pyroxene, species which evidently owe their origin to the metamorphism of silicious limestones. Beds of dolomite and of limestone more or less magnesian, are often interstratified with the pure limestones of this formation.

The limestones of this system are rarely compact, and most frequently

are coarsely granuted. They are white or reddish, bluish or grayish, and these colours are often arranged in bands which coïncide with the stratification. The principal mineral species met with in these limestones, are apatite, fluor, serpentine, phlogopite, scapolite, orthoclase, pyroxene, hornblende, wollastonite, quartz, idocrase, garnet, brown tourmaline, condrodite, spinel, corindum, zircon, sphene, magnetic and specular iron, and graphite. The condrodite and graphite are often arranged in bands parallel with the stratification. Beds of a mixture of wollastonite and pyroxene are sometimes met with, which are very rich in zircon, sphene, garnet and idocrase. The most crystalline varieties of these limestones often exhale a very fetid odour when bruised. The limestones of this formation do not yield everywhere well crystallized minerals; near the bay of Quinté there are met with beds which still preserve the sedimentary character, and show only the commencement of metamorphism.

The conditions in which they are sometimes found, indicate that the agents which have rendered these limestones crystalline, have been such as to render the carbonate of lime almost liquid, and that, while in that state, it has undergone great pressure. As evidence of this opinion, we find that the limestone often fills fissures in the adjacent silicious strata, and envelopes the detached, and often, folded fragments of these less fusible beds precisely like an igneous rock.

The crystalline schists, felspars, quartzites and felspars which we have described, make up the stratified portion of the Laurentian system, but there are besides, intrusive granites, syenites and diorites, which form important masses; the granites are sometimes albitic, and often contain black tournoline mica in large plates, zircon and sulphuret of molybdenor.

Among the economic minerals of this formation, the ores of iron are the most important, and are generally found associated with the limestones. The magnetic iron ore which supplies the forges of Marmora, C. W., is brought from Belmont, where it forms a succession of beds associated with crystalline limestone and a greenish talcons slate. The strata are here arranged in the form of a basin, and the iron ore predominates for a thickness of more than 100 feet. A few miles distant from this locality, in the Township of Madoc, there has been wrought a bed of magnetic iron ore which occurs in a micaceous schist and has a thickness of 25 or 30 feet. The ore, which is very fine grained, often possesses magnetic polarity, and contains a mixture of small quantities of actynolite with a little yellow uranite; it furnishes an iron of superior quality. Many other masses of this kind of ore are found in the surrounding region; that of South Sherbrooke has a thickness of 60 feet, and that of Crosby on the Rideau is nearly two hundred feet thick. At Hull on the

Ottawa, a bed of ore 100 feet thick is exposed by an undulation of the strata forming a sort of dome, so that the ore is wrought with great facility. These ores are for the most part pure magnetic oxyde of iron, sometimes mixed with a few hundreths of mica or quartz.

A compact variety of oligist ore, (red hematite,) often replaces the magnetic ore in this formation. At Macnab upon the Ottawa, a bed of this species twenty-five feet in thickness, is found in the crystalline limestone ; the ore is mixed with a little silica and carbonate of lime. Mr. Murray of the Geological Commission, has lately recognized the existence of a large extent of crystalline oligist ore upon one of the islands of Lake Nippissing.

The limestone of the Laurentian system are often traversed by veins of calcareous spar and sulphate of baryta, containing sulphuret of lead in disseminated masses, or in veins which are often two or three inches in thickness. One of these localities in the township of Lansdowne is already explored ; what appears to be a continuation of the same vein, is met with in the township of Bedford ; these localities are in a general direction N.E. and S.W. The galena is sometimes accompanied with small quantities of blende and iron pyrites ; it is very slightly argentiferous, yielding by coupellation only about two ounces of silver to the ton of ore.

Veins containing copper pyrites have been observed in several localities in the Laurentian system ; but the quantity of metal which they contain, appears very inconsiderable. One of these localities is in the Seigniory of Lanoraie, in the county of Berthier, and near to it in the same Seigniory there is a vein of quartz 40 feet wide containing a great quantity of, cubic and magnetic pyrites In the neighbouring Seigniory of Daillebout there is found a considerable vein of cubic iron pyrites, containing small portions of cobalt and nickel ; this same formation in the State of New York has furnished crystallized sulphuret of nickel.

Graphite is very frequently disseminated in small plates in the crystalline limestone, and also forms veins, sometimes of considerable thickness. Near Grenville, on the Ottawa, are two of these veins, one of which was wrought some years since. The graphite, according to the description of Mr. Logan, there forms three detached veins, each having a thickness of about five inches, and is accompanied by wollastonite, orthodase, idocrase, garnet, zircon, and sphene. Fine specimens of graphite have also been found in several other localities. The graphite of these limestones being very crystalline and lamellar, cannot be sawn like that of Cumberland, and besides, its colour is grayish and its lustre metallic, so that it is not suited to the manufacture of pencils. It may,

however, be very well employed for the fabrication of refractory crucibles.

The sulphate of baryta which is now very much employed in the fabrication of paints is common in the Laurentian formation. The gangue of the lead veins already mentioned, often consists of this mineral, and in a portion of that of Landsdowne in which the galena disappears, the vein which has a breadth of about two and a half feet, is filled with pure sulphate of baryta, often in large crystal. Bathurst and Macnab are also localities of this mineral.

The titaniferous iron-ores of this formation merit the attention of mineralogists by their abundance as well as by their associations; although these minerals are not adapted to the production of iron, when they contain a large proportion of titanic acid, they may become important as sources of titanium. The principal deposits of titanic iron in Canada, are at Baie-St.-Paul, where a single mass of 90 feet in breadth and 300 feet in length occurs with many other smaller ones in a rock which is chiefly composed of a triclinic felspar. The ore which is granular has the composition of the ilmenite of the Ural Mountains; it gave to Mr. Hunt titanic acid 48,60, protoxyd of iron 37,06, peroxyde of iron 10,42, magnesia 3,60=99,68; it contains in some parts, a considerable proportion of orange-red transparent grains which are pure titanic acid and belong to the species rutile or brookite. The felspathic rocks of this formation in several other localities, contain titanic iron often in small masses an inch or more in thickness and always marking the lines of stratification. If, in the progress of chemical science, titanium or its compounds should ever become important in the arts, these localities of Lower Canada will afford inexhaustible supplies of titanic iron-ore.

The crystalline limestone near Grenville furnishes a great quantity of mica in large crystals, capable of being divided into very thin plates, having a length and breadth of from twelve to twenty inches, and perfectly homogeneous and transparent. This locality is already wrought, and the mica is largely employed in the construction of stoves and lanterns.

The gneiss and quartz rock of the Laurentian system furnish in many localities excellent building materials, but, as these rocks occur for the most part in regions as yet but little inhabited, and as they are besides, more difficult to work than the silurian limestones, these harder materials are as yet but little explored. The Laurentian limestones furnish a white marble which is often marked with bluish or grayish undulation, as for example that of Arnprior; or it is mixed with grains of green serpentine as the marble which is wrought at Grenville. These limestones are

fine-grained, but the dolomite of lake Mazinaw may be compared with the marble of Carrara.

Among the minerals in this formation having an economic value, we must not forget the phosphate of lime so precious for agriculture, which is often met with in these crystalline lime stones. In the township of Burgess, there is a remarkable locality of this mineral in a bed of coarse-grained reddish limestone, containing also large crystals of mica. The phosphate of lime of a pale green colour, often forms long prisms two or three inches in diameter; the angles of these crystals are never very well defined, and the mineral often takes the shape of rounded masses, giving to the limestone that aspect of a conglomerate, and recalling those beds of Silurian limestones which we find filled with coprolites composed of phosphate of lime. The proportion of phosphate of lime in the limestone of Burgess, may be estimated at about one-third of the mass.

As stones capable of being employed for the purposes of ornament, we may cite from this formation the aventurine felspar to which Thompson gave the name of *perthite*, but which is an orthoclase, and the *peristerite* of the same author which is a white translucent albite, remarkable for its beautiful reflections of blue, yellow and green, resembling those of labradorite. A beautiful variety of this latter species, which we have already stated to be abundant in the hyperstenic rocks, is found in several places in erratic blocks, and exists in place, in the seigniory of Mille-Isles. In the township of Burgess a red variety of corumdum resembling the ruby, is found in small quantities, and the red zircons of Grenville are sometimes transparent and of a fine colour, constituting veritable gems.

III

THE HURONIAN OR CAMBRIAN SYSTEM.

The shores of lakes Huron and Superior offer a series of schists, sandstones, limestones and conglomerates interstratified with heavy beds of greenstone, and resting unconformably upon the Laurentian formation. As these rocks underly those of the silurian system, and have not as yet afforded any fossils, they may probably be referred to the Cambrian system (lower Cambrian of Sedgwick.) The schists of this system upon Lake Superior are bluish in colour, and contain beds of clurty, silex, marked by calcareous bands, and holding anthracite in its fissures.

These are covered by a considerable thickness of trap, upon which repose massive beds of red and white sandstone which sometimes becomes conglomerate and contains pebbles of quartz and jasper. Beds of a reddish argillacous limestone are often interstratified with these sandstones, which are intersected and overlaid by a second eruption of greenstone of great thickness and columnar in its structure. This formation, which, according to the observations of Mr. Logan, has, on lake Superior a total thickness of about 12,000 feet, is traversed by a vast number of trappean dykes.

In the corresponding formation on the north shore of lake Huron, the sandstones are more vitreous and the conglomerates more abundant than on lake Superior; they are, however, associated with conglomerates and schists similar to those we here just described, and the formation offers great intercolated masses of greenstone. A band of limestone, fifty feet in thickness forms a part of this series to which Mr. Logan assigns a thickness of about 10,000 feet. He has shown after the irruption of the interstratified greenstones, that of two systems of trap dykes and a third of granite, intermediate in time between the two eruptions of trap. The formation of the metalliferous veins is still more recent. The principal mineral species of these veins are native copper, quartz, calc-spar, dolomite, fluor, and sulphate of baryta with several zeolites, of which laumonite is the most common, heulandite, stilbite, thompsonite, apophyllite and analcime are also met with, as well as prelnite and datholite. These veins are only metalliferous where they traverse the beds of greenstones.

The most important localities of native copper are the islands near Nepigon Bay, lake Superior. Upon the island of St. Ignace a vein coincident with the stratification, has been traced from one end of the island to the other. This vein affords, whenever it has been explored, native copper often finely crystallized and associated with gray copper ore. Native copper has also been wrought on Michipicoten islands, at Maimanse and at Mica Bay, on the Eastern shore of the lake, where it is associated with gray sulphuret of copper and with copper pyrites. Native silver, often well crystallized, accompanies the copper in all the localities indicated in Michipicoten and St. Ignace islands. At Prince's mine on Spar Island, this metal is found in a vein of quartz and calcareous spar accompanied with sulphuret of silver and copper, blende, galena, malachite and arseniated cobalt. The native silver occurs in the form of little laminæ in the calcareous spar; several essays upon a mass of several hundred pounds weight, have yielded from three to four per cent of silver, containing traces of gold. Upon Michipicoten Island arsenical nickel is found with an arseniuret of copper (domeykite) and a green hydrated silicate of nickel and alumina containing 31 per cent of oxyd of nickel. Nickel is also found at Wallace mine on lake Huron as an arsenical sulphuret associated with pyrites; this ore furnishes 13 per cent of nickel with a little cobalt.

The veins as yet examined on Lake Huron do not contain native copper; copper pyrites are there the predominant ore, but the Bruce mines have furnished considerable quantities of gray sulpliment, and of variegated copper ore in a gaugue of quartz with heavy spar and dolomite. At Wallace's mine, at Root River, and at Echo Lake, there are also large veins where the metal is found in the form of copper pyrites.

This Huronian formation is known for a distance of about 150 leagues upon Lakes Huron and Superior, and everywhere offers metalliferous veins, which have as yet been very little explored. It cannot, however, be doubted, that this region contains metallic deposits, which will one day become sources of great wealth to Canada. The coal formation of the neighboring State of Michigan will then furnish the combustible required for melting the ores.

IV.

THE PALÆOZOIC FORMATIONS.

Upon the islands of the north of Lake Huron a series of fossiliferous strata is found to repose horizontally upon the inclined strata of the Huronian formation, but, farther south, these fossiliferous rocks rest directly upon those of the laurentian system, throughout the whole of their outcrop in the valley of the St. Lawrence. These fossiliferous strata correspond to the oldest fossiliferous rocks of Europe designated by Murchison as the silurian system, but forming the upper cambrian of Sedgwick. To this formation succeeds the upper silurian system of Murchison (Silurian of Sedgwick) and the devonian; these groups, with the exception of a small area of the carboniferous system, occupy the whole of the Canadian portion of that great basin which is bounded to the north by the Laurentian and Huronian systems.

Mr. Logan has shown that the basin thus indicated may be divided into two parts by an anticlinal axis, which, following the valley of the Hudson and of Lake Champlain, enters Canada near Missisquoi Bay, and thence, running North-West reaches the St. Lawrence near Deschambault, ten leagues west of Quebec. The western portion would then form a subordinate basin containing the Apalachian, Michigan and Illinois coal fields; while the eastern portion would embrace the coal fields of New Brunswick and Massachusetts. The rocks of these two basins present remarkable differences in their chemical and physical conditions. The formations of the western basin are nearly horizontal, and offer a perfect conformity, while in those of the east, there is discordance between the upper and lower silurian, and between the devonian and carboniferous formations. The strata of the eastern basin are moreover very much folded and contorted, and have in some parts undergone profound chemical and mineralogical changes. We shall first give a description of the sedimentary deposits of the western basin.

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V

THE WESTERN BASIN.

Reposing upon the Laurentian and Cambrian (*rocks*), and from the base of the palæozoïc series is found a sandstone, which is often purely quartzose, but sometimes (*colored*) by a mixture of oxyd of iron, and becoming slightly calcareous in its western prolongation. The fossils of this formation are few in number, being limited to two species of *Lingula*, some fucoids, and those impressions which have been named *Scolithus*. It is worthy of remark that the germ Lingula which characterizes the most ancient formations, still exists in tropical seas, and that the shells of all its species, both recent & fossil, are composed in great part of plurplatic (lime,) having a composition different from other shells and identical with that of the bones of vertebrate animals. The different species of *Orpicula* a germ closely allied to Lingula and the *conularia* offer a simular composition.

This sandstone to which the Geologists of New York have given the name of the *Potsdam Sandstone* often bears the foot prints of an animal which is regarded by Prof. Owen of London as a species of crustacea of which we have perhaps no living analogue. The impression of the feet on each side are very near to each other, but the width of the tracks from 5 to 12 inches, and there is an intermediate groove which appears to have been made by the tail of the animal. Prof. Owen has given to these impressions the name of *protechnites*. They are very abundant at Vaudreuil, St Anne and many other localities. The thickness of this formation of sandstone in the Eastern part of Canada is about 300 feet, but it diminishes towards the west.

Upon the Potsdam Sandstone reposes a formation known as the *calciferous sandstone* having at the East a thickness of 250 feet and it is characterized by peculiar organic remains among which are fucoids and several species of gasteropods. To the calciferous sandstone succeeds a mass of lime stone in which the New York Geologists have recognized four divisions designated by the names of Chazy, Birdseye, Black River and Trenton, each of these is characterized by particular fossils At Montreal

this group has a thickness of about 1200 feet, and presents at its base massive greyish beds; towards the upper part the limestones became black and bituminous, and are intercalated with black shales which form the commencement of the succeeding formation. Towards the west, these limestones are less abundant and the divisions not so well marked: upon the Manitoulin Islands, according to Mr. Murray, their total thickness does not exceed 300 feet.

These limestones are often very rich in fossils, which are sometimes silicified; near Ottawa the casts of Orthoceræ and of some other fossils occur in a granular ferruginous dolomite, while the (encasing) limestone contains no carbonate of magnesia. In the Chazy limestone near Hawkesbury as well as in a bed of sandstone at Allumette Island, belonging probably to the summit of calciferous sandstone there, are found rounded masses from one to three-fourths of an inch in diameter, consisting in great part of phosphate of lime, and apparently composed of the exuviæ of animals subsisting on the phosphatic shells just mentioned which are very abundant in these same beds. Fragments of *Lingula* are often visible in the interior of these coprolites, which yield by analyses, from 36 to 45 per cent. of phosphate of lime, with a little fluorid and carbonate, and portions of magnesia and oxyd of iron. The residue is silicious sand, with two or three per cent. of organic matter, which exhales ammonia with an animal odour when the coprolites are tested. The formation which rests upon the Trenton limestone is known by the name of the *Utica Slates;* these slates are black, bituminous and very fragile, containing abundance of graptolites, and having a thickness of from 60 to 100 feet. To the Utica slates succeeds a series of bluish or grayish schists, intercalated with thin beds of sandstone and limestone. This series which is often very fossiliferous belongs to the Hudson River group of the New York Geologists, and attains in Lower Canada a thickness of about 1500 feet; on Lake Huron, however, it is reduced to about 200 feet.

Resting upon this last series we find in the western part of Canada, a red argillaceous sandstone, known as the *Medina sandstone* and regarded as the base of the upper silurian system. At the western extremity of Lake Ontario, this sandstone has a thickness of 600 feet, but it becomes thinner towards the west, and appears to be wanting in the eastern basin. It is followed by a series of limestone and fossiliferous shales of no great thickness, known as the Clinton Group; and overlaid by massive beds of bituminous limestone, known as *Niagara* limestone. This formation presents an elevated plateau at the Falls of Niagara, while following at a little distance the S. W. shore of Lake Ontario, is prolonged to Cabots Head,

upon Lake Huron, and thence to the Manitoulin Islands. The upper beds of this formation, often contain cavities filled with crystals of calcareous spar, dolomite, sulphate of baryta, flour, celestine, selenite and anhydrite, sometimes with blende and galena. The combined thickness of the Clinton and Niagara groups on Lake Ontario is about 200 feet, but upon the Manitoulin Islands it rises to nearly 600 feet. To this formation succeeds a formation of shales and limestones known by the names of the *Gypsiferous Group* and the *Onondago Salt Group* which is followed by beds of limestone containing *Delthyris* and *Pentamerus*. These limestones form the summit of the upper silurian system, which attains between the Lakes Erie and Ontario, a total thickness of about 1100 feet.

The base of the *Devonian System*, in the State of New York, is the *Oriskany sandstone* represented in Canada by a white quartzose sandstone of little thickness upon which rests the *corniferous limestone* of the New York Geologists, the two forming together what they have named the upper Helderberg series. To these rocks succeed black bituminous shales known as the *Hamilton Group*. This is the highest formation met with in Western Canada, but in the neighboring States of Michigan and New York, we meet with the upper portion of the Devonian system in the form of massive sandstones intercalated with shales, and divided by the New York Geologists into the *Portage and Chemung Group*, and the *Catskill Mountain Group*. This last is regarded as the equivalent of the old red sandstone of England, and immediately underlies the carboniferous system.

The fossiliferous limestones of Montreal and St. Dominique take a fine polish and are employed as marbles; they exhibit white fossil form upon a gray or bluish gray ground. At Missisquoi Bay, and at Cornwall, is found a fine black marble, which belongs to the Trenton limestone. St. Lin furnishes large slabs of a beautiful reddish gray marble, filled with organic remains, especially with corals which have a bright red colour. This marble belongs to the Chazy division, which at Pakenham, gives a compact chocolate-brown marble susceptible of a very fine polish. The rocks of the Hudson River Group and the Trenton limestone furnish everywhere good material for building and paving. The Chazy limestone containes an argillaceous bed which is largely wrought on the Ottawa, and furnishes the hydraulic cement of Hull, which is much esteemed. This bed characterized by the proximity of a layer filled with *Cythere*, has been traced over a large area and furnishes a hydraulic cement at Kingston and Loughboro'. At Quebec a black limestone belonging to the Hudson River group, yields also a very valuable cement. The Thorold cement

so widely used, is derived from the base of the Niagara limestone while the gypsiferous formation at Cayuga, at Paris, upon the Grand River, and at Point Douglas on Lake Huron furnishes a cement which hardens very rapidly under water.

The chazy limestone in the vicinity of Marmora, contains beds of a superior lithographic stone in large quantities. The same stone may be traced at intervals as far as Lake Couchiching a distance of about 75 leagues.

The gypsum quarries of the upper Silurian rocks are very important, and are found all along the outcrop of the so called gypsiferous formation. The principal quarries wrought are in the townships of Dumfries, Brantford, Oneida and Cayuga. The gypsum is chiefly employed in the country as a manure or calcined as plaster of Paris. But apart from the domestic consumption, the townships of Oneida and Cayuga furnished last year 7000 tons for exportation to the United States. These gypsums are of recent origin; they occur in the form of mounds, which penetrate the palæozoic strata, and even the overlying clays of recent date. The beds of limestone which surrounds them are upraised, broken, and in great part absorbed. Mr. Sterry Hunt, of the Canadian Geological Commission has shown that these phenomena are due to certain springs containing free sulphuric acid which acting upon the carbonate of lime have changed it into gypsum. (*See Comptes Rendus de l'Académie des Sciences*, 1855, 1*st Semestre p.* 1348.) The Utica slates which are sometimes highly bituminous are worthy of attention as sources of oils and bituminous matters, but as yet no experiments have been made with them from an industrial point of view.

The Hamilton shales are still more bituminous and furnish in many parts of Western Canaada, springs of petroleum, as those upon the Thames and in Enniskillen where there are several superficial layers of asphalt, which appears to have been produced by the transformation of petroleum. The largest deposit of asphalt covers three acres, and there is another of half an acre with a thickness in some parts of two feet. This matter furnishes by distillation among other products a great quantity of naphtha.

VI.

THE EASTERN BASIN.

We have already indicated the existence of an anticlinal axis which divided in two parts the palaeozoic region of Canada. Upon the line of this axis the most recent formation (with the exception of the quaternary deposits) is the lower portion of the Hudson River group, distinguished by the name of the Lorraine or Richelieu shales. In the Yamaska valley an outcrop of the Trenton limestone marks this anticlinal line which separates the two basins. Not far to the east of this limestone, we find reposing upon the Richelieu shales a series of sedimentary rocks which constitute the upper part of the Hudson River group, but which are entirely wanting in the western basin from which they have probably been removed by denudation. This series is composed of massive grayish sandstone, often calcareous, associated with schists, gray, green, and red near the summit, and with other schists black, bituminous and graptolitic. In some parts of this formation the sandstone becomes conglomerate and encloses great fragments of the inferior fossiliferous formations. More frequently however these sandstones pass into a bituminous limestone containing fossils, and mixed with magnesia, oxyd of iron or silicious sand. These limestones are intercalated with silicious and bituminous dolomite which weathers yellow and contains a portion of carbonate of iron; the dolomite appears in some parts to be replaced by a ferruginous and silicious carbonate of magnesia. This series of rocks forms the heights of Point-Lévi and Quebec, where it has a thickness of 1000 feet. To this Quebec formation, succeed red and green schists holding little bands of calcareous matter, and intercalated, especially near the summit, with great masses of quartzose sandstone, often calcareous, and coloured reddish or greenish by a mixture of argillaceous matter. This series of sandstones and schists which may have a total thickness of 300 feet, has been named by Mr. Logan the Sillery group, and appears to be the equivalent of that which the New York Geogolists have designated as the Shawangunk or Oneida conglomerate, which in central New York is interposed between the Richelieu shales and the Medina sandstone. This Sillery group like that of Quebec is wanting

in Western Canada, but to the east the two may be traced as far as the southern extremity of the Apallachian coal basin.

The Sillery group offers but very few organic remains; at Rivière Ouelle, however the sandstone has furnished bodies composed of phosphate of lime, and resembling fragments of bones. In the same locality also a bed of conglomerate with a calcareous base contains a great number of what appear to be coprolites; they are composed of phosphate of lime with a little corbonate, some animal matter, and 10 or 12 per cent. of oxyd of iron, and are intermingled with a large quantity of iron pyrites in small radiated globules. This association appears to be due to the reducing action of organic matters upon a neutral proto-sulphate of iron which would furnish at the same time bisulphuret and oxyd of iron. The graptolitic shales of Point-Lévi also contain coprolites.

Upon the Quebec and Sillery groups, which form the northern shore of the peninsula of Gaspé, repose unconformably about 200 feet of fossiliferous limestones and shales which represent the upper silurian system, and to these succeed 7000 feet of devonian sandstones interstratified with red shales. Upon the Southern shore of Gaspé the upturned edges of these devonian strata are overlaid by 3000 feet of horizontal beds of a sandstone, the mill stone grit which forms the base of the New Brunswick coal-field, but they are themselves destitute of coal.

The fossiliferous limestones of Gaspé may be followed to the S. W. as far as Lake Memphramagog upon the line of the United States, and from thence they continue southwards in the valley of the Connecticut until they are concealed by the triassic sandstones of Massachusetts, affording a continuous outcrop of 700 miles. The devonian system, which is purely silicious in Gaspé, presents towards the S. W. some beds of limestone, which are found associated with the upper silurian limestones, in the line of the great valley just indicated.

VII.

THE METAMORPHIC ROCKS.

The rocks of the eastern basin have been disturbed by successive foldings and dislocations, and form a series of parallel montain ranges which belong to the Apallachien system and which, traversing the province of Canada, in a south-west direction, may be traced as far as the State of Alabama, in latitude 34° N. Some of these mountains in Canada attain a height of over 4000 feet. The rocks of this mountainous region have been very much metamorphosed and rendered crystalline by chemical action, so that the fossils are for the greater part obliterated. The rocks thus altered belong to the Hudson River group and to that of Sillery, and they form a belt having an average breadth of about 40 miles, which limits to the north-west the valley occupied by the superior limestones throughout its whole length. The direction of this metamorphic belt does not coincide precisely with that of the undulations of the region, from which it results that the latter, in their northern prolongation, pass out of the limits of the metamorphic region and present the strata with their characteristic fossils. The changes which these sedimentary strata have undergone are often very remarkable, some of the beds have been converted into chloritic, micaceous and talcous schist and others into felspathic, hornblendic and epidotic rocks. With the talene schists and agillites are intercalated beds of serpentine, which have already been traced for a distance of 150 miles in Canada and are accompanied by limestone, dolomite, magnesite and diallage.

The investigations of the Geological Commission go to show that during the changes which these sedimentary rocks have undergone, there has been no introduction of foreign materials, but that on the contrary all the minerals which are found in these crystalline strata have been produced by the reactions and chemical combinations of the matters already existing in a state of mixture in the sediments. The unaltered argilaceous schists yield by analysis four or five per cent. of alkali which suffices to form the felspar and the micas found in the crystaline schists; the dolomites and the magnesites always contain a large amount of silica and very often a portion of oxyd of chromium which under the form of chromic iron characterises the serpentines of this region. The sedimentary origin of these serpentines is

very evident and they are probably the result of an action between silica and carbonate of magnesia in presence of water, and aided by a somewhat elevated temperature. Bischoff has shown that silica even in its insoluble modification decomposes the carbonate of lime, magnesia and iron, in contact with water at 100° centigrade. A similar reaction with highly silicious magnesites would furnish a hydrated silicate which is no other than serpentine, and with the dolomites would result amphiboles and diallages. Magnesites containing less silica would yield talcs and steatites, while dolomites containing too little silica to form amphiboles would give rise to the mixtures of serpentine with carbonate of lime so common in these strata.

Among the unctuous schists possessing a pearly lustre there are many which are not magnesian but owe their physical characters to a micaceous mineral, which in certain cases at least is a hydrous silicate of alumina, idential with the *pholerite* of cuillemin. It is worthy of remark that the principal minerals of these metamorphic rocks are hydrated, as for example, the serpentine, talc, chlorite and pholerite ; the diallage is also hydrated. Among the anhydronus specise which these rocks contain, we may mention pyroxene, orthoclase, epidote, and more rarely garnet, sphene and tourmaline.

As we approach the north-western limit of the metamorphic region, it is easy to observe the gradual transition by which the schists lose their chloritic and nacreous aspect, and assume their original sedimentary character. Beyond the limits of the metamorphism, but in a region where the rocks are still much disturbed, there are found fissures filled with a black, bituminous and very fragile material, which sometimes forms botryordal masses. This matter loses by a strong heat 20 per cent. of volatile by hydrocarbons and leaves a pulverulent charcoal which burns with difficulty being only a few thousanthes of ash. This substance which is very common in the formations of Sillery and Quebec appears to have been derived from the bitumen of the palaeozoic rocks, which volatilized by heat has been condensed in fissures, where it has subsequently undergone such changes as have caused it to lose its volatility, and converted it into a coal-like material.

In the County of Gaspé, the limestone of the upper silurian sytem, which have suffered no mineralogical changes, rest upon the metamorphosed strata of lower silurian, and frequently enclose fragments of these latter, but towards the south-west, the fossils of these limestones show proofs of a commencement of such metamorphism, and in the valleys of the river St. Francis and of Lake Memphramagog, the limestone become crystalline and micaceous, although the fossils of the upper silurian and devonian epochs may be still recognized upon weathered surfaces and in thin sections

of the limestones. Towards the south-east these crystalline limestones are overlaid by micaceous schists more or less calcareous, associated with chiastolite slates, quartzites and hornblendic rocks containing garnets, the whole being altered palaeozoic strata, and penetrated by granites of the devonian epoch. The facts which we have cited shew that the metamorphic action in this region, as well as the force which produced the undulations of the strata was prolonged up to the end of the palaeozoic epoch.

The crystalline strata just described contain many metallic veins which traverse both the upper and lower silurian rocks, and these veins, together with the mineral contents of the metamorphic strata themselves make this region very interesting in an economic point of view. A series of highly ferruginous slates of the Hudson River group, yield in the townships of Bolton and Brome beds of iron ore, in which the metal in the form of magnetic oxyd or peroxyd is disseminated in crystals or more often in grains and scales in a chloritic schist associated with dolomite. These beds have a thickness of from six to fifteen feet and yield from 20 to 50 per cent. of metallic iron. They often contain titanic acid, but generally in small quantity. The titanium also appears in the form of crystals of sphene in a vein traversing one of the beds of magnetic iron ore, and in another locality as crystallized rutile upon specular iron; chemical analysis shews the presence of titanium in the unaltered ferruginous slates of the altered region. These deposits of iron ore are very abundant, but from the mixture of chlorite and the presence of titanium, they cannot be compared with the deposits of the same species in the Laurentian rocks. The same ores are met with in many other localities in this formation. A remarkable locality of magnetic and titaniferous iron occurs in Vaudreuil and Beauce, where the two species intimately mixed, form a bed fifty feet thick in serpentine. The ore is granular and after having been pulverized may be separated by the magnet into two portions; the magnetic portion which forms about two-thirds of the mass is pure magnetic oxyd of iron, while the residue is ilmenite containing 48.6 per cent of titanic acid. The serpentines of this region contain in many places disseminated grains of chromic iron ore, of which a bed of twelve inches occurs in Bolton, and one of fourteen inches in Ham. These ores contain from 46 to 50 per cent. of oxyd of chromium. Chromic iron also occurs disseminated in the dolomites and magnesites.

The copper ores of this metamorphic region are found in veins which are generally concordant with the stratification, and are associated with the dolomites of the Quebec formation. In Upton there is a vein twelve inches wide, of argentiferous copper pyrites, in a gangue of quartz, and

another similar vein near Sherbrooke contains, besides silver, traces of gold. In Leeds and Inverness are found considerable veins of sulphuret of copper, variegated copper ore, with a gangue of quartz and dolomite. In Leeds a bed of ferruginous dolomite contains sulphuret of copper and specular iron with a little native gold. Small quantities of copper ore are met with in various other localities; they are often disseminated in beds of dolomite, with blende and galena.

The seigniories of Vaudreuil and St. George, in the Valley of the Chaudière, present veins of quartz which traverse slates belonging to the base of the upper silurian limestone, and contain native gold in small quantities, with galena, blende, arsenical sulphuret of iron, cubic and magnetic pyrites. The blende and pyrites are both auriferous, and the galena from a recently opened vein contains one-thousandth of silver. The *debris* of these slates and of those of the Quebec formation, have furnished the auriferous sands which cover a large area on the south-east slopes of the metamorphic belt. The gold, the existence of which Mr. Logan has shewn in the alluvium over a surface of about 10,000 square miles, is associated with magnetic, chromic and titanic iron ores, rutile, zircon, and small quantities of native platinum and iridosmium. The gold, which sometimes occurs in masses weighing several ounces, but more often in the form of small scales and grains, contains from eleven to thirteen per cent. of silver. It is not easy to say what proportion of gold is contained in these sands, but experiments on a large scale have shewn that the exploration cannot be pursued with profit with the present price of labour. Cobalt and nickel have been found in traces only in these rocks. An arseniated oxyd of nickel is found in small quantity at Bolton, and the oxyds of the two metals are associated with the chromic iron of Ham.

Among the economic materials of this region, the roofing slates must not be forgotten. It is now only six years since the geological commission first signalized their existence, and already large quarries are wrought, which furnish in abundance slates of superior quality. The quarries of Melbourne, Richmond and Kingsey, belong to the Hudson River group, but those of Westbury and Rivière du Loup, are near the base of the upper silurian. These slates have a cleavage independently of the stratification, and have shining surfaces. Silicious slates which serve as whetstones, are common in many localities in both of these formations.

Steatite, which generally accompanies the serpentines of Lower Canada, is abundant in Bolton, Potton, Vaudreuil, Beauce, and many other localities. The former beds, intercolated for the most part with argillaceous or hornblendic schists, may be obtained in large masses. A compact chlorite

or potstone is also very abundant in many parts of the same formation, and may readily be sawn into large blocks. The serpentines throughout their whole extent, furnish very beautiful dark green marble, often resembling the *vert-antique*; green serpentines of various shades are mingled with white and grayish limestones, giving rise to many varieties of these marbles, the finest of which are from Broughton and Oxford. Near Philipsburg the Trenton limestones afford a fine white marble; in their southern prolongation, these limestones become more crystalline, and form the white marbles of Vermont, which are now celebrated. The upper silurian limestone of Dudswell are grayish and yellowish, with veins and spots of black; they still exhibit on their polished surfaces, the traces of fossils, and often form marbles of great beauty.

The dolomites and magnesian carbonates of this region furnish in abundance the materials for the fabrication of the salts of magnesia. A deposit of magnesite in Bolton has a breadth of more than 300 feet; the rock is crystalline and colored green by oxyds of chrome and nickel: another bed of it has been found at Sutton. The analysis of the two has given as follows:

	Sutton.	Bolton.	
Carbonate of magnesia	83.35	60.13	= magnesia.......28.62
Carbonate of iron	9.02	8.32	= oxyd of iron.... 5.13
Silica, insoluble	8.03	32.20	
	100,40	100,65	

The insoluble part of these magnesites is chiefly silicious sand. It is worthy of remark that the Bolton rock contains silica and magnesia in the proportions required to form a serpentine.

The granites already alluded to, which traverse the devonian system, are very fine grained, of a grayish color, and splitting with facility, yield a superior building material; that of Stanstead is the best known. Vaudreuil furnishes a bluish-gray variety which is used by the country people for the fabrication of mill-stones.

To the east of the great anticlinal axis which divides in two partst he palaeozoic formations of Canada, are the mountains of Brome, Shefford, and Yamaska; these are great masses of an intrusive rock, which is a coarse-grained diorite, often having the aspect of a granite, and containing generally a white felspar with augite and a little mica. The mountains of Monnoir, Beloeil, Montarville, Montreal and Rigaud, to the west of the same axis, are also formed of intrusive rocks; Beloeil, which is the most elevated, has a height of about 1,300 feet. These hills are composed of diorites having much resemblance to that of Brome and Yamaska; these diorites are characterized by the presence of small amber-yellow crystals of sphene.

VIII.

THE QUATERNARY OR ALLUVIAL DEPOSITS.

We have already indicated the existence in Canada of the palaeozoic rocks and the base of the carboniferous system, but with the exception of the post-tertiary deposits, the more recent formations are entirely wanting. The surface of Canada is formed of clays interstratified with sands and clays, and in many parts overlaid by diluvium. These stratified deposits contain the remains of a great many species of marine animals, identical with those now inhabiting the gulf of the St. Lawrence. The concretions found in a bed of clay near Ottawa contain in great abundance the remains of the capeling (*mallotus villosus*) associated sometimes with the *Cyclostomas lumpus*, and great numbers of the leaves of exogenous trees. The skeletons of a cetacea and of a species of *Phoca* have been found in the clays of Montreal, where beds filled with shells exist at a height of 500 feet above the present sea-level. Similar stratified clays, but without fossils, have even been remarked at an elevation of 1,200 feet. The detached bones of the *Elephas primigenius* and of a species of deer have been found in a stratified gravel on the shores of Lake Ontario. In the Valley of the St. Lawrence several terraces may be distinguished, marking the different limits of the sea during the deposition of these post-tertiary strata.

The clays of this series form the superficial soil of a great portion of the country; they are often calcareous and constitute a soil remarkably fertile. The alluvium which is spread over but limited areas, has been transported from the north; in the eastern part of the St. Lawrence Valley it consists almost exclusively of the ruins of rocks of the Laurentian system, but in the south-west of Canada the *debris* of the palæozoic formations are mingled with those of the crystalline rocks.

The soil of the south-east of Canada is composed of the ruins of the metamorphic palaeozoic strata which form that mountain chain, already described as a prolongation of the Alleghanies. In the Laurentide mountains the soils are very fertile near the limestones and the lime felspars, and we find that the settlements have followed the outcrops of these rocks, while the gneissoid and quartz ore districts are still uncultivated. Among the

economic materials of the superficial deposits are clays for the fabrication of bricks and coarse pottery which are wrought in a great number of places. In the vicinity of London, of Toronto and of Cobourg there are clays which yield white and yellow bricks that are much esteemed. Moulding sands and tripolis are also abundant in different localities. Deposits of shell marl, very valuable as manure, occur often in beds of large extent; among other localities we may cite Sheffield and Olden, near Kingston, the vicinity of Ottawa, Stanstead and New Carlisle.

The hydrated peroxyd of iron limonite, is widely spread in Canada, and forms superficial deposits often of large extent. The forges of St. Maurice, near Trois Rivières, have been supplied for nearly a century with the limonite of that neighborhood, and a furnace for the smelting of the same ore has lately been established at Champlain in the same vicinity. It is worthy of remark that although the St. Maurice ore contains a considerable proportion of phosphate, it furnishes castings and malleable iron of an excellent quality. In the County of Norfolk, on the shores of Lake Erie, there are beds of limonite which have been wrought for a long time, and there are also extensive beds of this ore in Vaudreuil, near Montreal, and at Saint Vallier.

These deposits of limonite on the north side of the St. Lawrence, are often associated with iron ochres; the most remarkable localities of which are at Pointe-du-lac and St. Anne de Montmorenci. The ochres of Pointe-du-lac are wrought, and yield by different processes a variety of valuable pigments. The phosphate of iron, vivianite, in a pulverulent form is found in abundance with the limonite of Vaudreuil.

Considerable areas in the eastern part of Canada are covered with marshes which furnish abundance of peat, but this combustible is as yet almost unknown in the country. There are a great many of these marshes upon the north side of the St. Lawrence from Mille Isles, in the District of Montreal, as far as Champlain, a distance of about 120 miles; and upon the opposite shore they are found from the County of Beauharnois to the Rivière du Loup, over a length of about 300 miles. The *savanne* of St. Hyacinthe covers an area of about two leagues, and there are others still larger. The peat is often twelve and fifteen feet in thickness, and of excellent quality; that of Longueuil, in the vicinity of Montreal, has been wrought for a year past, and furnishes a fuel which will before long become very important for a country where coal is wanting and where wood is already becoming dear.

IX.

THE MINERAL WATERS.

The mineral waters of Canada without exception issue from the unaltered palaeozoic rocks, and offer from their number and their various composition a very interesting subject of investigation. The annual reports of the geological commission give the analysis, by Mr. Sterry Hunt, of fifty-nine springs, of which fifty-four are more or less saline, and may be divided into two classes: the neutral waters which contain besides salts of soda, chlorides of calcium and magnesia, and the alkaline waters holding carbonate of soda. Both of these classes contain with but few exceptions, bromides and iodides in small quantities, as well as bicarbonate of lime and magnesia, often in great abundance. In those springs which do not contain sulphates, salts of baryta and strontia are constantly met with, and small traces of oxyds of iron and manganese are never wanting. In some of the neutral salines the quantities of chlorides of magnesia and calcium are so considerable that the waters are very bitter, but others, which contain less of these salts are very agreable to the taste, and much frequented by invalids. In the report of the geological commission for 1853, there is a list of twenty springs of this class, containing, from four to thirty-six parts of solid matter in one thousand parts of water. Among these springs the best known are Saint-Lèon, Caxton, Plantagenet, Lanoraie, and Point-du-Jour, but others equally good are found at Nicolet, St. Geneviève and elsewhere. The quantities of bromides and iodides, and the salts of baryta and strontia contained in several of these springs give them valuable medicinal properties.

In the report already cited there is also a list of eighteen alkaline springs, of which twelve furnish from two to twelve parts of solid matter to the thousand of water. Among these twelve there are nine which contain salts of baryta and strontia, these two bases being almost always associated. In the more saline of these, the quantity of carbonate of soda is relatively small, being equal to from one to twelve hundredths of the total weight of soda salts, while in the weaker waters it rises to fifty and even eighty-hundredths. The greater number of these waters contain small quantities of borate of soda, which is included with the carbonate in the numbers which

we have just given. The best known of these springs are those of Varennes and Caledonia, which are feebly alkaline and pleasant to the taste. A spring at Chambly contains two thousandths of solid matter, of which one half is carbonate of soda, and another at Nicolet contains in a litre 1·135 grammes of alkaline carbonate, and only 0·423 grammes of chlorids. The proportion of potash in these mixed salts rarely rises above two or three-hundredths, but the alkalies of a spring at St. Ours, determined in the state of chlorides, give twenty-five hundredths of chloride of potassium. The water of this spring contains 0·53 grammes of solid matter in a litre, principally alkaline carbonates. All the waters of this class hold in solution silica, often in considerable quantity, and deposit by boiling, silicates of lime and magnesia, mixed with carbonates of these bases. Silica in a soluble form is always found even in the neutral saline waters.

With some few exceptions, the springs of these two classes rise from strata belonging to the lower silurian system, the waters of the limestones which form its base are generally neutral, while the springs which flow from the schists which cover these limestones are often alkaline.

Among the springs of the upper silurian rocks there are some neutral salines, and those of the acid waters, of which we have spoken in noticing the gypsums of Upper Canada. The analyses of four of these springs have furnished from 2·00 to 4·30 grammes of free sulphuric acid, and from 0·60 to 1·87 grammes of sulphate of iron, alumina, lime, magnesia, and alkalies to the litre. Of these acid waters that of Tuscarora is the best known and has a great reputation among the country people of the vicinity in the treatment of various diseases; all these acid springs contain a little sulphuretted hydrogen. Many of the springs of the silurian rocks are more or less sulphurous, but that of Charlotteville, which is upon the outcrop of the devonian strata contains in addition to a considerable amount of chlorides and sulphates, the large proportion of 32 cubic inches of sulphuretted hydrogen to the gallon.

The acid springs of which we have just spoken, as well as a great number of salines, evolve carburetted hydrogen gas, and often in considerable quantities. None of the springs of Canada as far as yet observed appear to merit the appellation of thermal.

X.

THE GREAT NORTHERN BASIN.

This great basin, of which the Laurentides form the southern limit is very little known. Among the Laurentian rocks at lakes Nipissing, Saint Jean, and des Allumettes, small areas of lower silurian rocks are met with, which are to be regarded as detached portions of the southern basin. The last of these localities occurs on the Ottawa at the mouth of the Mattawa, and sixty miles further north, after having passed the great Laurentian axis, we reach the valley of lake Temiscaming, which belongs to the northern basin. Here Mr. Logan found a series of chloritic schists, sometimes conglomerate in character, nearly horizontal in their attitude, and having a thickness of about a thousand feet. To these schists succeed 500 feet of massive greenish white sandstones, overlaid by a calcareous formation 300 feet thick, and composed of strong beds of yellowish and grayish limestones intercolated with calcareous shales. The whole filled with the characteristic fossils of the upper silurian period.

The chloritic schists probably correspond to the Huronian rocks, but it is difficult to fix the age of the sandstones which are destitute of fossils. In all the collections brought from this northern region, there have as yet been found no fossils more ancient than those of lake Temiscaming; the numerous fossils found in the diluvium on the shores of lake Superior, also help to show that the lower silurian system is entirely wanting in the vast basin to the north of the Laurentides; from which fact Mr. Logan concludes, that these mountains from the coast of Labrador to the Arctic Ocean formed the limits of an ancient silurian sea.

CATALOGUE

OF THE

ECONOMIC MINERALS OF CANADA.

METALS AND THEIR ORES.

Magnetic Iron Ore.—Marmora, four localities ; Madoc, four localities ; South Sherbrooke, Bedford, Hull, three localities ; Portage du Fort.

Specular Iron Ore.—Wallace Mine (Lake Huron,) MacNab, St. Arnaud, Sutton, three localities ; Brome, three localities ; Bolton.

Limonite (*Bog Ore.*)—Middletown, Charlotteville, Walsingham, Gwillimbury West, Fitzroy, Eardley, March, Hull, Templeton, Vaudreuil, St. Maurice, Champlain, Batiscan, Ste. Anne, Portneuf, Nicolet, Stanbridge, Simpson, Ireland, Lauzon, St. Vallier.

Titaniferous Iron.—St. Urbain (Baie St. Paul,) Vaudreuil (Beauce.)

Sulphuret of Zinc (*Blende.*)—Prince's Mine and Mamainse (Lake Superior.)

Sulphuret of Lead (*Galena.*)—Fitzroy, Lansdowne, Ramsay, Bedford, Bastard, la Petite Nation, Ause des Sauvages, and Ause du Petit Gaspè, Maimanse.

Copper.—St. Ignace and Michipicoten Islands (Lake Superior,) St. Henri, *native copper.* Prince's Mine (Lake Superior,) *sulphuret of copper.* Mica Bay and Maimanse (Lake Superior) *sulphuret variegated copper and copper pyrites.* Bruce's Mine (Lake Huron,) Root River, Echo Lake and Wallace Mine (Lake Huron,) *copper pyrites.* Inverness and Leeds, *variegated copper.* Upton, *argentiferous copper pyrites.* Ascot, *copper pyrites containing gold and silver.*

Nickel.—Michipicoten (Lake Superior,) *arsenial nickel, with a hydrated silenite of nickel.* Wallace Mine (Lake Huron,) *sulpharseniuret of nickel.* Daillebout Berthier, *nickeliferous pyrites.* Ham and Bolton, in small quantities, associated with chromic iron; the nickel in most of these different localities is associated with a little cobalt.

Silver.—St. Ignace and Michipicoten Islands (Lake Superior,) *native silver with native copper.* Prince's Mine (Lake Superior,) *native silver with sulphuret of silver.*

Gold.—Seigniory of Vaudreuil, Beauce, on the Rivers Guillaume, Lessard, Bras, Touffe des Pins, and du Lac. Seigniory of Aubert de Lisle. Rivers Famine and du Loup. Aubert-Gallion, Poser's Stream, and the River Metgermet. All these localities in the County of Beauce afford native gold in the alluvial sands. This auriferous region has an area of 10,000 square miles, and the precious metal has been found at Melbourne, Dudswell, Sherbrooke, and many other localities in the valleys of the St. Francis and the Chaudière. Native gold is also found in small quantities in Leeds, in a vein with specular iron, and at Vaudreuil, Beauce, with blende and pyrites. These sulphurets are both auriferous, and the copper pyrites of Ascot also contain a small proportion of gold. The native silver of Prince's Mine likewise contains traces of gold.

NON-METALLIC MINERALS.

Uranium.—The yellow oxyd of uranium is found in small quantities with the magnetic iron of Madoc.

Chromium.—Bolton and Ham are localities of chromic iron.

Cobalt.—At Prince's Mine, Lake Superior, *arseniate of cobalt* and associated with nickel in the localities mentioned above.

Manganese.—Bolton, Stanstead, Tring, Aubert-Gallion, Ste. Marie, Beauce, Ste. Anne, *earthy peroxyd.*

Iron pyrites.—Clarendon, Terrebonne, Lanoraie, Garthsby.

Graphite.—Grenville, Fitzroy.

Dolomite.—Lake Mazinaw, North Sherbrooke, Drummond, St. Armand, Dunham, Sutton, Brome, Ely, Durham Melbourne, Kingsey, Shipton, Chester, Halifax, Inverness, Leeds, St. Giles, Ste. Marie, Saint Joseph.

Carbonate of Magnesia.—Sutton, Bolton.

Sulphate of Baryta.—Bathurst, Macnab, Lansdowne, and many localities on Lake Superior.

Iron Ochres.—St. Nicholas, Ste. Anne de Montmorency, Champlain, Waltham, Mansfield, Durham.

Steatite.—Sutton, Bolton, Melbourne, Ireland, Potton, Vaudreuil, Beauce, Broughton, Elzevir, the steatite of the last four localities is employed as a refractory stone, and that of Stanstead and of Leeds is ground and employed as a paint.

Lithographic Stone.—Marmora, Rama, lake Couchiching.

Agates.—Isle St. Ignace, Michipicoten, and Thunder Bay (lake Superior) Gaspé.

Jasper.—Great Rivière Ouelle, Gaspé.

Labrador felspar.—Mille Isles, Drummond and many other localities.

Aventurine.—Burgess.

Hyacinthe.—Grenville.

Corumdum.—Burgess.

Amethyst.—Spar Island, and many other localities on Lake Superior.

Jet.—Montreal.

Quartzose Sandstone.—For the manufacture of glass, Cayuga, Dunn, Vaudreuil, Isle Perrot, Beauharnois, and many localities on the north shore of Lake Huron.—The sandstone of St. Maurice is employed as a fire-stone for iron furnaces.

Retinite and Basalt.—For the fabrication of black glass: many localities on Lake Huron and Superior.

Gypsum.—Dumfries, Brantford, Oneida, Seneca, Cayuga, &c., the localities are very numerous.

Shell Marl.—Calumet, Clarendon, North-Gwillimsbury, Bromley, MacNab, Nepean, Gloucester, Argenteuil, Hawkesbury, Vaudreuil, St. Benoit, Ste. Thérèse, St. Armand, Stanstead, St. Hyacinthe, Montréal, New Carlisle, (Gaspé.)

Phosphate of lime.—Burgess, Hull, Calumet, Ottawa.

Millstones.—Several kinds of stone, more or less adapted to the purpose, are employed in Canada for the fabrication of millstones. The best is a corneous quartzite which accompanies the serpentine of the Eastern Townships, and has been wrought at Bolton.

A silicous conglomerate which serves to make millstones is found at Vaudreuil, at the Cascades, Ham and Port Daniel. We may mention also for this purpose the granites of Stanstead, Barnston, Barford, Hereford, Ditton, Marston, Strafford, Weedon and Vaudreuil, Beauce, the granite millstones of Vaudreuil are much esteemed. The pseudo-granites and diorites of the mountains of Ste. Thérèse, Rouville, Rougemont, Shefford, Yamaska and Brome, are also sometimes employed to make millstones.

Grindstones.—A sandstone, known as the gray-brand, and found at the base of the upper silurian of Western Canada in many localities is employed for the fabrication of grindstones. The Potsdam sandstone and a sandstone from Gaspé basin are also employed for the same purpose.

Whetstones.—Madoc, Marmora, lake Mazinaw, Fitzroy, Potton, Stanstead, Hatley, Bolton, Shipton, Marston.

Tripoli.—Laval, Lanoraie.

BUILDING MATERIALS.

Granites.—Large masses of a very beautiful intrusive granite are found in many of the townships of the East. Among other localities we may cite Stanstead, Barnston, Hereford, Marston, Megantic mountains, Weedon, Winslow, Stafford, and Lambton. The diorites of the mountains of Ste. Thérèse, Rouville, Rougemont, Yamaska, Shefford, and Brome, furnish also good building stones.

Sandstone.—A beautiful variety of yellowish-white sandstone occurs at Niagara, Queenstown, Barton, Hamilton, Flamboro' West, Nelson, Nassagaweya, Esquesing, Nottawasaga, and Cayuga. Other localities are Rigaud, Vaudreuil, Ile Perrot, St.-Eustache, Terrebonne, Beauharnois, St. Maurice, Lac des Allumettes, and Fitzroy.

Calcareous Sandstone.—Brockville, Ottawa, and a great many places on the Ottawa river, St. Nicolas (Lauzon), Cape Rouge Malbaie.

Limestones.—Malden, Manitoulin and St Joseph's islands, Cape Hurd, Cabot's Head, Sydenham, Euphrasia, Nottawasaga, Mono, Esquesing, Nelson, Ancaster, Thorold, Matchedash Bay, Orillia, Rama, Mara, Marmora, Madoc, Belleville, Kingston, Macnab, Ottawa, Plantagenet, Hawkesbury, Cornwall, Isle Bizard, Isle de Beauharnois, Caughnawaga, Montreal, Isle Jésus, Terrebonne, Philipsburg, St. Dominique, Grondines, Deschambault, Beauport, Baie St. Paul, Malbaie. Upton, Acton, Wickham, Magoon's Point, Stanstead, Hatley, Dudswell, Temiscouata Gaspé, Port Daniel, Richmond, Anticosti.

Hydraulic Limestones.—Point Douglas, (Lake Huron,) Paris, Cayuga, Thorold, Kingston, Loughboro', Hull, Quebec.

Roofing Slates.—Kingsey, Halifax, Lambton, Melbourne, Westbury, Rivière du Loup.

Flagging Stones.—Toronto, Etobicoke, River Credit, York, Temiscaming, Bagot, Horton, Clarendon, Sutton, Potton, Stanstead, Inverness, Port Daniel.

Clays.—Clays suitable for the fabrication of red bricks, tiles and coarse pottery, are everywhere found through the valleys of the St. Lawrence, Richelieu and Ottawa. Clays, for the manufacture of white bricks are met with at London, Toronto, Cobourg, and Peterborough.

Moulding Sand.—Augusta near Prescott, Montreal, Acadie, Stanstead.

Fullers' Earth.—Nassagaweya.

Marbles.—*White.*—Lake Mazinaw and Philipsburg.

Black.—Cornwall, Philipsburg.

Red.—St. Lin.

Brown.—Pakenham.

Yellow & Black.—Several varieties at Dudswell.

Grey & variegated.—Macnab, Philipsburg, St. Dominique, Montreal.

Green.—Serpentines affording several beautiful varieties of marble occur at Grenville, and along a range of 150 miles in the Eastern Townships. Among other localities we may mention Stukely, Brompton, Oxford and Vaudreuil—Beauce.

COMBUSTIBLES, ETC.

Peat.—Humberstone, Wainsfleet, Westmeath, Beckwith, Goulbourn, Gloucester, Cumberland, Clarence, Plantagenet, Alfred, Caledonia, L'Orinal, Osnabruck, Finch, Winchester, Roxburg, Longueuil, St. Hyacinthe, Monnoir, the Seigniory of Rivière du Loup, Rivière Ouelle, Macnider.

Petroleum.—Mosa and many localities on the Thames, River St. Jean and Ruisseau-Argenté, (Gaspé.)

Asphaltum.—Enniskillen.

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* The nineteenth class related to cotton manufactures, none of which were exhibited.

† The twenty-first class related to silk manufactures.

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* We sent nothing in the two last classes of sculpture and architecture.

THIRD SERIES.

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Map for the assistance of the reader of the Essay on Canada by J. C. Taché Esq.[r]